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National Transportation Safety Board Highway Accident Report
Greyhound Bus Run-off-the Road Accidents: Donegal, Pennsylvania
June 26, 1991 and Caroline, New York, August 3, 1991

(U.S.) National Transportation Safety Board, Washington, DC

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NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C. 20594

HIGHWAY ACCIDENT REPORT

ADOPTED: MARCH 13, 1992

NOTATION 5671

On June 26, 1991, about 1:50 p.m., a Greyhound bus traveling from Cleveland, Ohio, to Washington, D.C., ran off the right side of the roadway and overturned on the Pennsylvania Turnpike near Donegal, Pennsylvania. One passenger was fatally injured, the driver and 14 passengers were injured, and 1 passenger was uninjured.

On August 3, 1991, about 6:45 a.m., a Greyhound bus traveling from New York City to Buffalo, New York, ran off the right side of the roadway, and overturned on State Route 79 near Caroline, New York. The driver and 33 passengers were injured, and 5 passengers were uninjured.

In this report the following safety issues are discussed: Greyhound's monitoring and evaluation of new driver progress during the training and licensing processes, the adequacy of behind-the-wheel training for new, inexperienced Greyhound busdrivers, and the adequacy of Greyhound busdriver route directions.

As a result of its investigation, the Safety Board made recommendations addressing these issues to Greyhound Lines, Inc., and the U.S. Department of Labor.

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EXECUTIVE SUMMARY

On June 26, 1991, about 1:50 p.m., a Greyhound bus traveling from Cleveland, Ohio, to Washington, D.C., ran off the right side of the roadway and overturned on the Pennsylvania Turnpike near Donegal, Pennsylvania. One passenger was fatally injured, the driver and 14 passengers were injured, and 1 passenger was uninjured.

On August 3, 1991, about 6:45 a.m., a Greyhound bus traveling from New York City to Buffalo, New York, ran off the right side of the roadway, and overturned on State Route 79 near Caroline, New York. The driver and 33 passengers were injured, and 5 passengers were uninjured.

The National Transportation Safety Board determines that the probable cause of the Donegal and Caroline accidents was the failure of Greyhound Lines, Inc., to ensure that the busdrivers had adequate training and experience to operate intercity buses safely, resulting in their inability to control their vehicles, which ran off the road and overturned.

The safety issues addressed in this report include:

- o Greyhound's monitoring and evaluation of new driver progress during the training and licensing processes.
- o The adequacy of behind-the-wheel training for new, inexperienced Greyhound busdrivers.
- o The adequacy of Greyhound busdriver route directions.

As a result of its investigation, the Safety Board issued safety recommendations to Greyhound Lines, Inc., and the U.S. Department of Labor.

**NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594**

HIGHWAY ACCIDENT REPORT

**GREYHOUND BUS RUN-OFF-THE-ROAD ACCIDENTS:
DONEGAL, PENNSYLVANIA, JUNE 26, 1991,
AND CAROLINE, NEW YORK, AUGUST 3, 1991**

INVESTIGATION

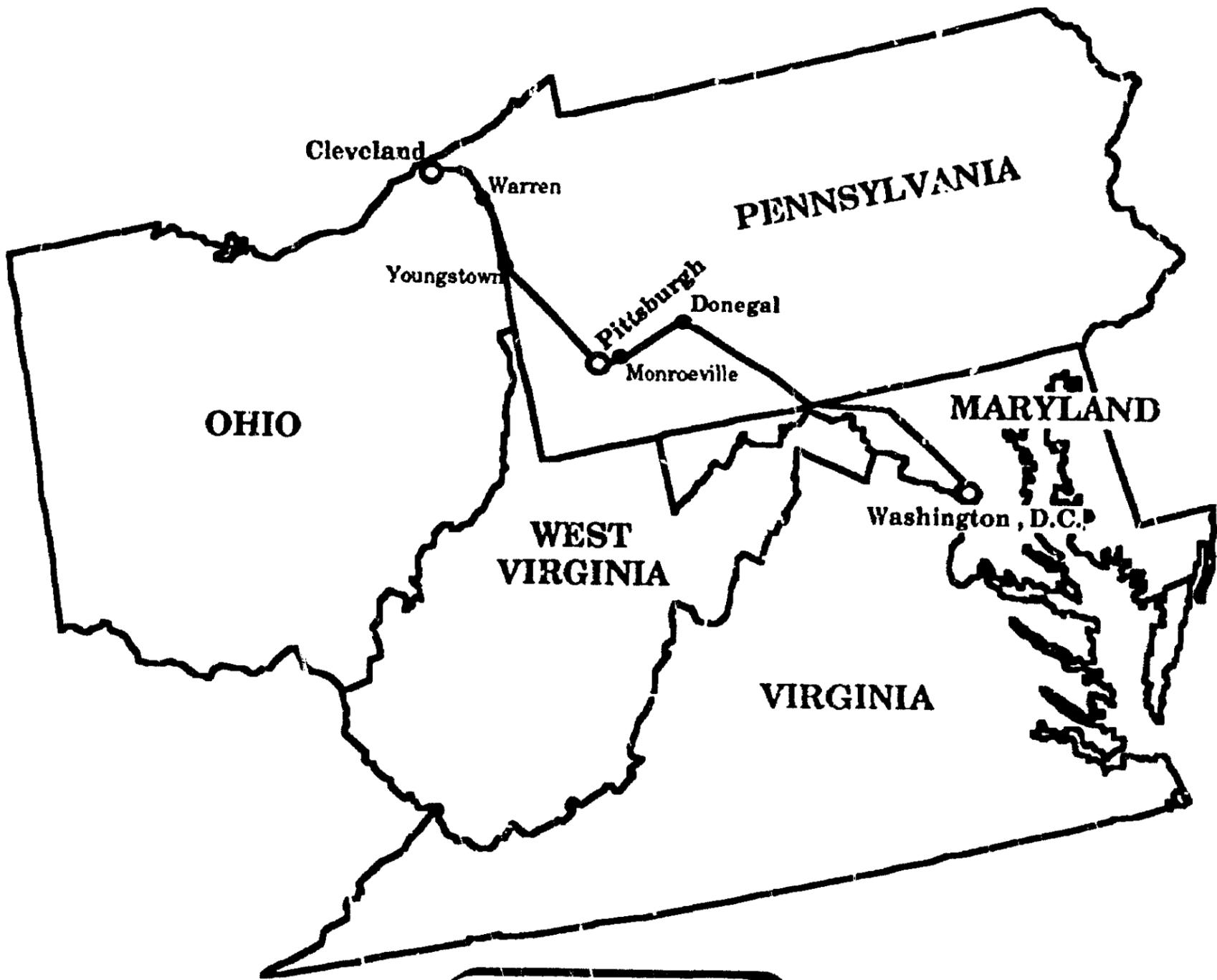
Donegal, Pennsylvania, Accident

About 1:50 p.m. eastern daylight time, on Wednesday, June 26, 1991, an intercity bus operated by Greyhound Lines, Inc., (Greyhound) was transporting 16 passengers eastbound on the Pennsylvania Turnpike en route to Washington, D.C., from Cleveland, Ohio. (See figure 1.) Approximately 7 miles past the Donegal exit, the bus passed a passenger car that was in the right lane (of the 3 eastbound lanes) behind a tractor-semitrailer. The occupants of the car, a woman and her son who both witnessed the accident, said that they were traveling about 60-65 mph and the bus, which was in the center lane, was traveling about 70-75 mph. The witnesses changed from the right lane to the center lane and were traveling behind the bus when they saw the bus drive into the right lane in front of the tractor-semitrailer. The passenger car witnesses said that the bus "just kept going" off the right side of the roadway and down an embankment. They did not see bus brake lights or turn signals activated prior to the accident. According to the witnesses, when they went down to help the bus occupants after the accident, the busdriver told them, "I just lost it."

The bus traveled down a 100-foot embankment and overturned onto its right side. (See figures 2 and 3.) The busdriver said that she was "hanging" in her seat by her lapbelt and that when she unbuckled the lapbelt, she fell into the stairwell. During a preliminary interview the busdriver stated that a tractor-semitrailer came over into her lane causing her to run off the roadway. She said, "I was feeling okay . . . It was in the daytime and I was wide awake." She also stated that "large trucks make me nervous."

Most of the bus passengers were asleep at the time of the accident and were not able to describe the event. Two of the passengers who were awake described the bus running off the roadway as a gradual move and thought the driver was pulling over to look at directions. Following the accident, the driver of the tractor-semitrailer stopped his truck, and then, according to the witnesses, left to get help. He did not return to the accident scene and has not been identified. One of the witnesses who spoke with the truckdriver indicated that he was shaken up and that he had stated, "She tried to hit me." After the bus came to rest, the passengers evacuated the bus through the emergency roof hatches and the first three left side windows. (See figure 4.) None of the occupants were ejected. As a result of the accident, 1 passenger was fatally injured, the driver and 14 passengers were injured, and 1 passenger was uninjured.

It was clear and sunny and the roadway was dry at the time of the accident. Witnesses indicated that the sun was on the right side of the roadway, partially obscured by a hill.



Approximate Mileage	
Cleveland	
-10 Miles-	Warren
-15 Miles-	Youngstown
-60 Miles-	Pittsburgh
-10 Miles-	Monroeville
-30 Miles-	Donegal

Map Not To Scale

Figure 1.--Donegal accident bus route.

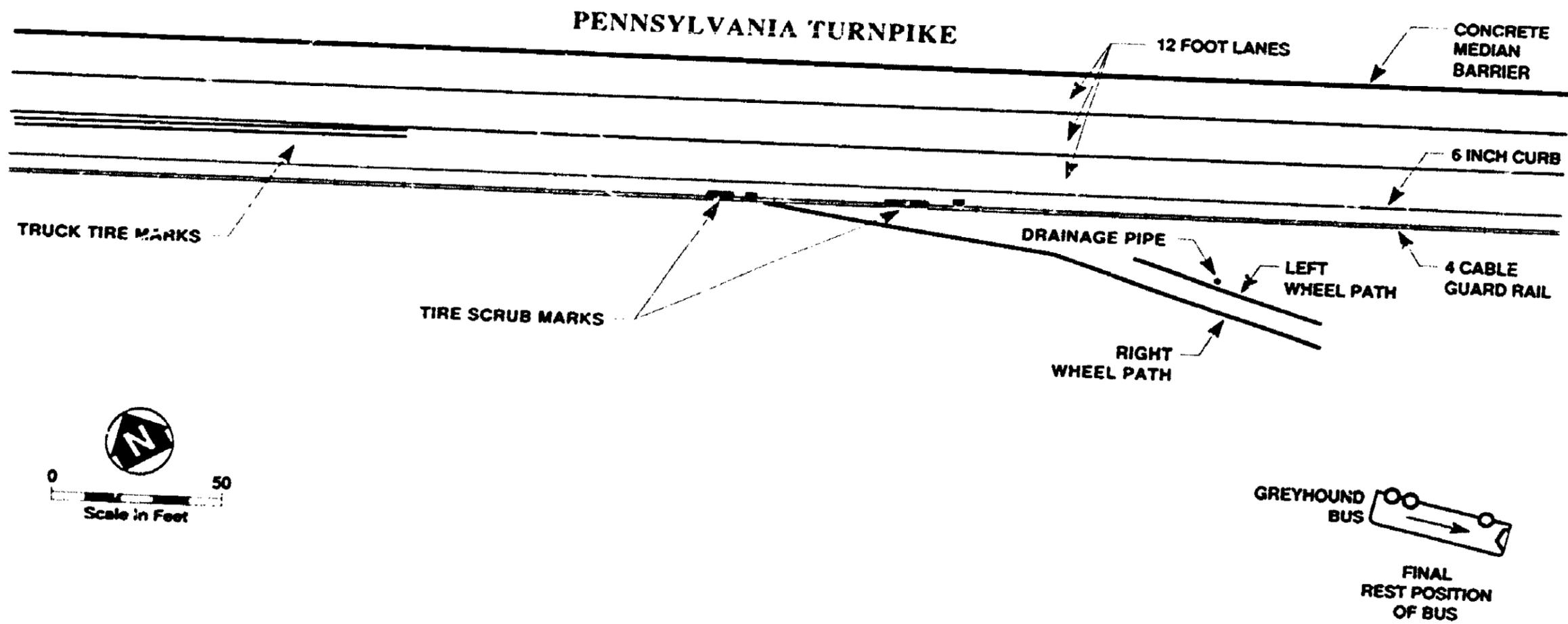


Figure 2.--Donegal accident site diagram.

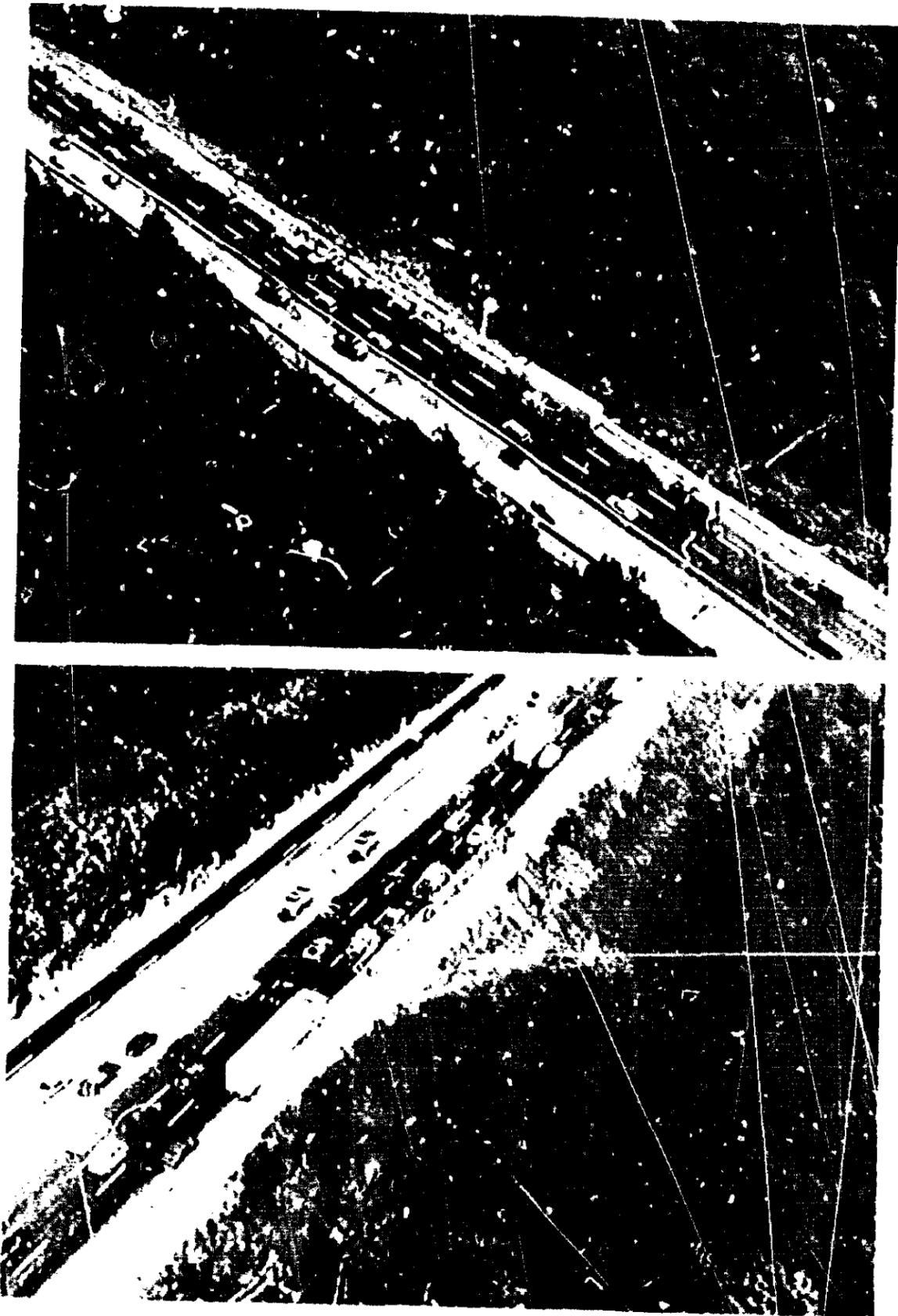


Figure 3.--Photographs of Donegal accident site.

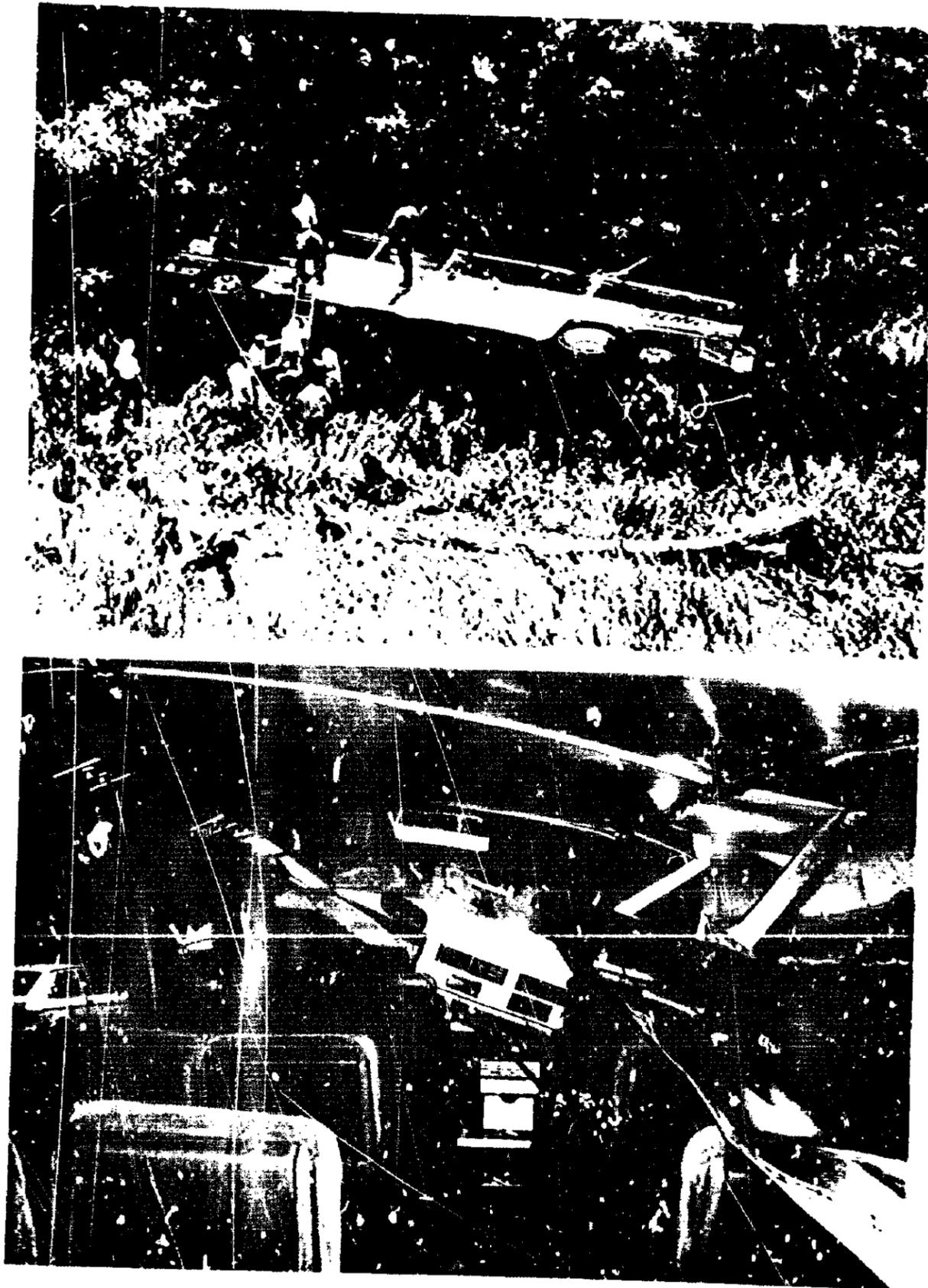


Figure 4.--Evacuation of Donegal bus.

Preaccident Events

About 8:30 a.m., the bus departed from Cleveland, Ohio, heading southeast to Pittsburgh, Pennsylvania, with four intermediate stops en route. The bus was on a scheduled run that originated in Chicago, Illinois, and was to terminate in Washington, D.C. The accident busdriver began driving in Cleveland. She had been recently hired, and this was her second unaccompanied trip for Greyhound. The bus had been scheduled to depart from the Cleveland Greyhound terminal at 7:20 a.m. but did not leave until about 1 hour later. During the busdriver's interview, she stated that she was late because she had not started taking tickets and loading passengers soon enough to leave on schedule.

Between the Cleveland and Pittsburgh terminals, bus passengers stated that the driver became lost several times. Although the busdriver had written directions from Greyhound, passengers indicated that she was not taking the correct routes and had trouble locating entrance ramps onto main highways. When the passengers attempted to help her with directions, the driver became irritated and, at one point, told two passengers (one of them was an off-duty Greyhound busdriver in uniform) that she would move them to the rear of the bus if they continued. Several passengers reported that when the driver made a wrong turn near Warren, Ohio, she entered a small shopping center parking lot to turn around. While turning, she struck a concrete light support pole in the parking lot, and then ran across a lawn and onto a driveway of a private residence adjacent to the parking lot. Near Youngstown, Ohio, although the passengers told the driver that she was going the wrong way, she stopped to call Greyhound for directions and was told that she was going the right way. When leaving Pittsburgh, she took another wrong turn and missed the entrance to the highway. No one tried to help her with directions this time, but she stated during an interview that "I could tell people was staring at me."

Passengers stated that she hit the brakes constantly and the ride was jerky; she drifted into other lanes excessively; she changed lanes without looking; she wrote while driving and frequently speeded. The passengers said that she almost ran a car off the road once when she changed lanes, but when the driver of the car blew his horn, she quickly switched back to her lane. In Pittsburgh, passengers stated that she entered the exit lane of the terminal and had trouble placing the bus into reverse and positioning the bus for the handler at the terminal. Two of the passengers (traveling from Youngstown to Pittsburgh) complained about her erratic driving to a ticket agent at the Pittsburgh terminal.

Additionally, the off-duty Greyhound busdriver who was cushioning back to Washington, D.C., stated that he did not think the driver had her mirrors set correctly because she moved around in her seat and stayed in the left lane too much. He also stated that she did not brake far enough in advance of traffic control signals. He said that he had tried to help her with directions, but she had not been receptive. When the accident occurred, the off-duty driver was sleeping and did not see what happened.

¹A term Greyhound uses when referring to busdrivers who receive rides back to their home terminals but are not responsible for driving.

Injuries

The deceased passenger, a 53-year-old woman, sustained blunt force injuries to the chest including multiple rib fractures, a fractured sternum, and lacerations of the heart. She was seated in the second window seat on the right side of the bus. The busdriver and 14 other passengers sustained broken bones, cuts, bruises, and abrasions. The passengers were transported to seven local hospitals.

Safety Board Injury Table²

<u>Injuries</u>	<u>Busdriver</u>	<u>Passengers</u>	<u>Total</u>
Fatal	0	1	1
Serious	0	3	3
Minor	1	11	12
None	0	1	1
Total	1	16	17

Vehicle Information and Damage

The accident bus, an MC-9 manufactured by the Transportation Manufacturing Corporation in May 1982, was a 3-axle intercity coach with seating for 43 passengers. The bus was equipped with a rear-mounted diesel engine, power steering, and a four-speed automatic transmission. Following the accident, all bus brakes were examined and found to be within the manufacturer's specifications for adjustment and condition. The bus' tires were new and all except the two on the tag axle³ were inflated to the manufacturer's recommended pressures. The tires on the tag axle were underinflated by 15 and 18 pounds.

The bus sustained extensive crush damage to the right front and side roof. (See figure 5.) The right front corner of the roof was crushed downward to the dashboard and to within 40 inches of the floor. The roof along the right side of the bus had collapsed 2 feet, forcing the right overhead luggage rack to within 2 inches of the tops of the seatbacks. (Also see bottom of figure 4.) The entire right side of the bus was scraped and gouged, and four of the six right side windows were broken. Dirt and grass were embedded in the right front corner of the bus and the right and left sides of the roof; the entire roof was scraped and dented. The left side cargo door had a 13-inch-deep dent, approximately 25 inches from the ground. Although all of the seats remained attached to the floor, two armrests were displaced but not broken. Estimated damage to the bus was \$90,000.

Highway Information

The Pennsylvania Turnpike is a limited access toll road that runs east-west between Ohio and New Jersey. The highway in the area of the accident is a five-lane divided roadway. At the accident site, 7 miles east of Donegal, Pennsylvania, the speed limit is 55 mph, and the highway is a tangent (straight)

²The injury table above is based on the injury criteria of the International Civil Aviation Organization, which the Safety Board uses in accident reports for all transportation modes. An injury table based on the Abbreviated Injury Scale (AIS) of the American Association for Automotive Medicine is in Appendix C.

³An auxiliary axle placed after the drive axle of a commercial vehicle.

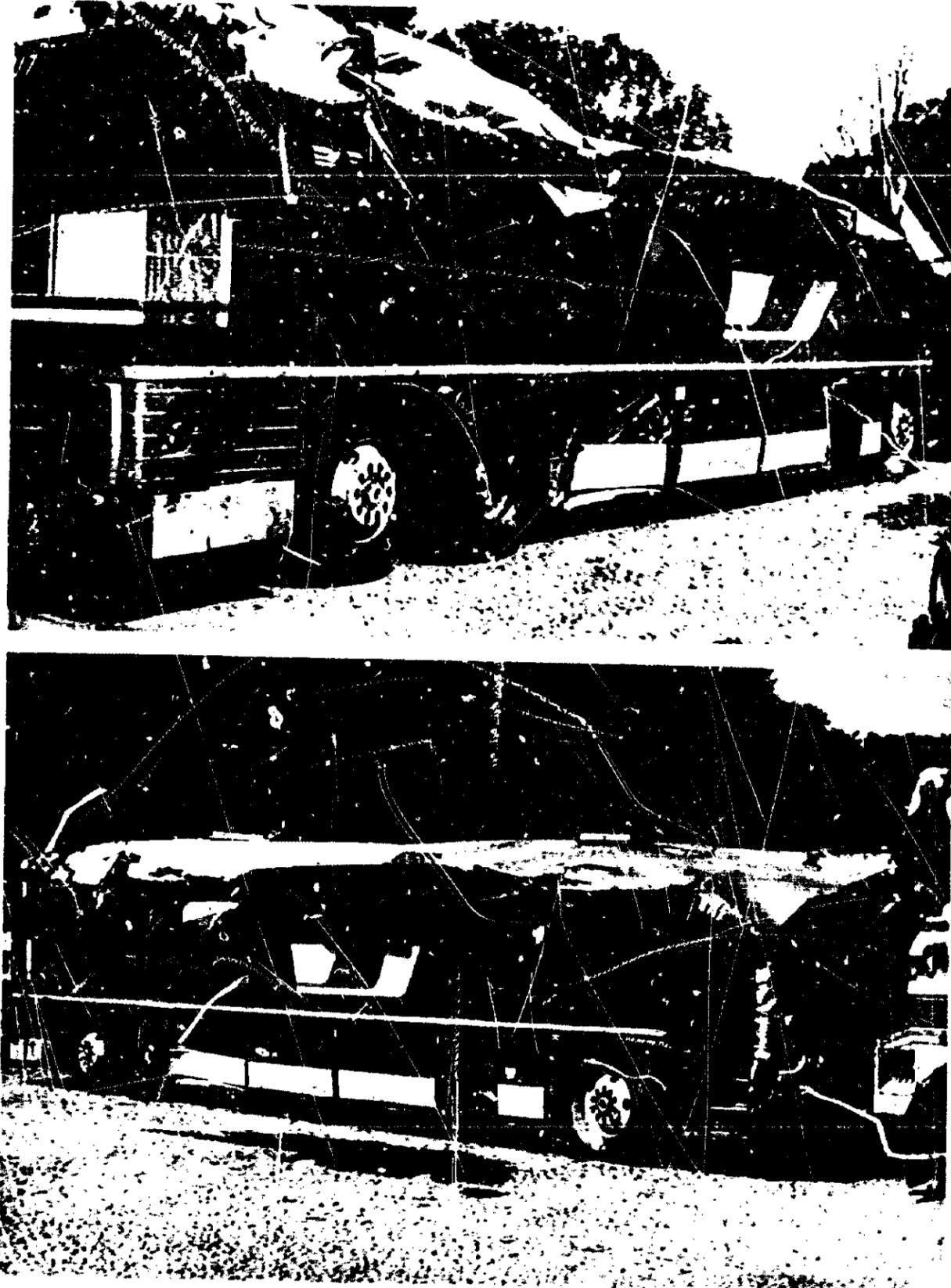


Figure 5.--Crush damage to Donegal bus.

section of roadway with a 3-percent upgrade for eastbound traffic. The eastbound portion of the highway consists of three 12-foot-wide lanes with a 6-foot-wide right shoulder. The roadway had been repaved with asphalt and striped with reflective tape 90 days before the accident. The right shoulder is bordered by a 6-inch-high and 6-inch-wide asphalt curb and a 27-inch-high post and cable guardrail. The median had concrete barriers to contain construction related to the turnpike's resurfacing project, but no work was in progress at the time of the accident. The eastbound average daily traffic count between the Donegal and Somerse interchanges for June 1990 was 17,098; for July 1990, it was 18,756.

In the right lane, before the point where the bus left the roadway, there were two dual-tire skidmarks approximately 137 feet long angled toward the center lane. At the accident site, there were 28 feet of tire scuff marks and some scrape and gouge marks along the 6-inch-high asphalt curb.

Driver Information

Personal.--The busdriver was 23 years old at the time of the accident and lived in Cleveland, Ohio, with her young child and his father. She attended vocational school for typing in 1985 and received her high school graduate equivalency diploma in 1986. From August 1987 until June 1989, she worked as a store clerk; from August 1990 until February 1991, she worked as a home care provider.

The busdriver stated that she was 5 months pregnant at the time of the accident. Greyhound officials were unaware of her pregnancy; the condition was not noted on her physical examination form, and it was not required to be. During an interview, the busdriver indicated that she was not experiencing any adverse effects because of her pregnancy. She said she was taking iron pills daily and vitamins occasionally. She had no history of major illnesses, operations, hospitalizations, or other medical conditions. She possessed a medical examiner's certificate dated May 7, 1991, which indicated that she was physically qualified to operate a commercial vehicle. The Safety Board obtained a blood sample for toxicological testing, and the results were negative for alcohol and drugs. Immediately after the accident, Greyhound fired this busdriver.

Licenses.--The busdriver obtained a temporary Ohio driver's license on October 9, 1987, when she was 19 years old. On October 30, 1987, she obtained a regular Ohio driver's license with no restrictions, and on January 15, 1991, her license was renewed. Although she obtained her driver's license in 1987, she stated that she drove only occasionally between 1987 and 1990. After she got her own car in 1990, she estimated that she drove about 30 miles a week. On May 14, 1991, after applying to Greyhound for employment as a busdriver, she obtained an Ohio chauffeur learner's permit with a "passenger-Commercial Driver's License (CDL)" endorsement. On June 21, 1991, she was issued an Ohio commercial driver's license with no restrictions, which will expire on February 20, 1995. She had no previous experience driving a truck or a bus until she was employed by Greyhound on June 22, 1991. A check of her motor vehicle record did not reveal any violations.

Training.--The busdriver began the Pro Drive, Inc., (Pro Drive) training course⁴ in Newark, Ohio, on May 19, 1991, and graduated on June 6, 1991. She started school in a class of 79 students, 67 of whom graduated. Pro Drive's records showed that she had received a total of 106 hours of training in the course: 38 hours in the classroom, 39 hours on the driving range, and 29 hours on the road. Pro Drive explained that there were errors in her record, and instead of receiving 38 hours of classroom training, she received 76.5 hours, bringing the total training hours up to 144.5. Her grades were as follows: 80 percent for classroom, 86 percent for range, and 84 percent for road training. She finished with an overall score of 83 percent (a passing grade is 75 percent). One student of the 67 graduates scored lower than the Donegal driver, completing the course with a score of 82 percent.

Eight driving skill evaluation forms were completed on the driver during her training period. These skill evaluation forms are used to evaluate the driver's knowledge of and ability to properly operate the bus. During training, the skill evaluation form is completed by the student's instructor and lists 38 categories that are numerically rated and classified as "inadequate," "poor," "good," and "excellent."⁵

Driving skill evaluation forms completed by the instructor for the driver's first 4 days of driving revealed that, with the exception of "personal appearance," the driver did not score above "poor" on any skill evaluated. Remarks by the instructor during these 4 days included: "skills need quite a bit of practice," "watch lead foot and steady braking," and "needs to slow down and make turns smoother, also stops (i.e., RR crossings) need work." During her training, the instructor continuously remarked "needs more practice" or "work still needed" in (1) conducting pre-trip inspections, (2) adjusting seat and mirrors, (3) steering, (4) backing up, (5) scanning panel, road, and mirrors, and (6) straight forward driving.

During the next 3 days of behind-the-wheel instruction, the driver received a total of 27 "poor" scores and 27 "good" scores on evaluations. During this period, the instructor remarked: "Shows improvement--does well when concentration is there." On the eighth and final day of behind-the-wheel instruction, the driver received 19 "good" scores. The following day, June 6, 1991, the driver graduated from school.

The busdriver stated that during her first week of training (including 3 days of driving), there were three students including herself in the bus for behind-the-wheel training. She said that they shared the driving equally. During the last 5 days of behind-the-wheel training, she drove with one other student and estimated that she actually drove about 4 hours in an 8-hour day. These 8-hour days, however, also included a pre-trip inspection that took 45 minutes and a lunch break that took up to 1 hour.

Preaccident Schedule.--The busdriver had been off duty on June 23, 24, and 25 and was at home most of this time with her child. On Monday, June 24, she ate breakfast, lunch, and dinner and went to sleep about midnight. On Tuesday, June 25, she woke up about 9 a.m., ate lunch (chinese food) and dinner (chicken

⁴Pro Drive conducted busdriver training for Greyhound at the time of the Donegal and Caroline accidents. Pro Drive's training program is discussed in detail later in this report.

⁵See appendix D for driving skills listed on the Driving Skill Evaluation form.

and rice), and took a nap with her child from 1 p.m. to 4 p.m. She went to sleep that night about 9 p.m. and was called on Wednesday, June 26, at 1 a.m. and told to report to the bus garage at 3 a.m. She took a bath and ate leftover chicken before she arrived at the garage at 2:50 a.m. She was assigned to shuttle various buses from the garage to the terminal and back. She was told she would be taking a bus to either Pittsburgh or Chicago and was sent back to the bus garage dormitory to sleep for about 1 1/2 hours before being called at 6 a.m. The dispatcher first told her she was going to Pittsburgh and then told her she was going to Washington, D.C., and asked her if she had ever been there. She stated that she had not, and he gave her directions. The driver said she was a "little nervous" because she had never driven there before. The only trip the busdriver had driven without supervision was from Cleveland to Pittsburgh the previous Saturday, June 22, which was an express run requiring one stop.

The busdriver conducted her pre-trip inspection⁶ of the bus and told investigators that she checked the oil, radiator fluid, engine wires, lights, and tires, and filled out a pre-trip inspection form. When asked if she had checked the brakes, she said that she "put the pedal on the floor and that they [the brakes] worked." When asked what the air gauge indicator read, she said she did not look at it.

Caroline, New York, Accident

About 6:45 a.m. eastern daylight time on Saturday, August 3, 1991, an intercity bus operated by Greyhound and transporting 38 passengers was traveling westbound on State Route 79 en route to Ithaca, New York. (See figure 6.) This bus was following another Greyhound bus on the same route. The driver stated that he had been keeping a one-car-length distance between his bus and the lead bus because he did not want any vehicles to get between the two buses. Approximately 10 miles east of Ithaca, the accident bus began to drift leftward. The busdriver indicated that the bus "just went left and I came back to the right." He further stated that "when the bus started to sway, I went on the brakes." After that, the bus ran off the right side of the roadway into a drainage ditch and subsequently traveled along the ditch about 500 feet, went back onto the roadway, rotated 180 degrees clockwise, went back off the right side of the roadway, and overturned onto its left side facing east (opposite the direction of travel). (See figure 7.)

Most of the bus passengers were asleep at the time of the accident. One bus passenger stated that the busdriver was speeding and driving erratically, trying to keep up with the lead bus so that he would not get lost. After the bus came to rest, many of the younger bus passengers helped the older passengers evacuate the bus through the roof hatches. None of the bus passengers were ejected. As a result of the accident, the driver and 33 passengers were injured, and five passengers were uninjured. It was drizzling and the roadway was wet at the time of the accident.

⁶The safety items to be checked in a pre-trip inspection are found in 49 CFR 396.11.



Approximate Mileage

New York City
- 178 Miles -
Binghamton
- 40 Miles -
Caroline

Map Not To Scale

Figure 6.--Caroline accident bus route.

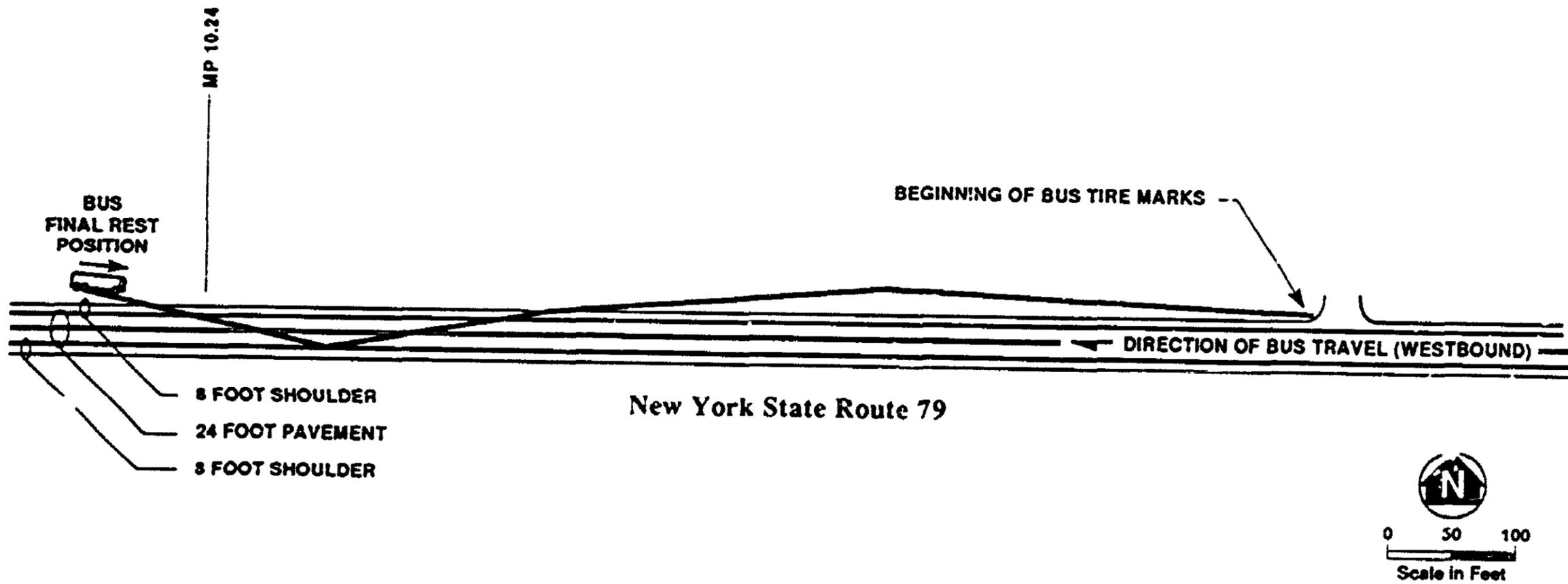


Figure 7.--Caroline accident site diagram.

Preaccident Events

About 1:20 a.m., the bus departed from New York City heading to Buffalo, New York, with several intermediate stops en route. The second bus was added to the scheduled trip due to the large number of passengers wanting to go Buffalo.

The busdriver had been hired 2 months prior to the accident; he was not assigned to the New York City terminal and had never been on this route before. The dispatcher told him to follow the lead bus to Buffalo. One passenger stated that when the busdriver first boarded he announced, "Does anyone know the way to Buffalo?" One person responded that he did, and the busdriver asked him to come forward and sit near him. The buses made a scheduled stop in Binghamton, New York, and were westbound on State Route 79 traveling toward Ithaca when the accident occurred.

Injuries

The one seriously injured passenger, who sustained a broken back, was seated in the 10th row window seat on the right side of the bus. The other injured occupants sustained minor injuries such as cuts, bruises, and abrasions. The passengers were transported to five local hospitals.

Safety Board Injury Table⁷

<u>Injuries</u>	<u>Busdriver</u>	<u>Passengers</u>	<u>Total</u>
Fatal	0	0	0
Serious	0	1	1
Minor	1	32	33
None	0	5	5
Total	1	38	39

Vehicle Information and Damage

The accident bus, an MC-9 manufactured by the Transportation Manufacturing Corporation in August 1984, was a 3-axle intercity coach with seating for 47 passengers. The steering system was examined without power, and there was no evidence of fluid leaks, bent or broken components, or excessive wear of parts. All bus brakes were examined and found to be within the manufacturer's specifications for adjustment and condition. All tread thicknesses were within Federal requirements, and the tire pressures were within the manufacturer's recommended pressures. The bus sustained extensive crush damage along the full length of the left side at the roof line and top frames of the side windows. There was no damage to the rear or undercarriage of the bus. Estimated damage to the bus was \$50,000.

Highway Information

New York State Route 79 is a two-lane, asphalt roadway running in an east-west direction. The highway in the area of the accident site consists of two

⁷See footnote 2 on page 7.

12-foot-wide lanes separated by a solid yellow line and a dashed yellow centerline and bordered by solid white edgelines and two 8-foot-wide paved shoulders. The roadway had last been repaved in 1985, and the 1990 average daily traffic count was 4,200 vehicles. The New York Department of Transportation stated that the accident site is not considered a high accident location. There were 922 feet of tiremarks in the grass and on the pavement starting 198 feet west of milepost 10.22. The tiremarks started in the grass beyond the westbound shoulder, paralleled the roadway, crossed over both lanes of travel, and curved back toward the final resting position of the bus. (See figures 8 and 9.)

Driver Information

Personal.--The busdriver was 26 years old and had been a resident of New York City most of his life. He had moved to Washington, D.C., in January 1990. The busdriver's employment history indicated that from August 1983 to April 1991 he had nine jobs including serving as a soldier in the Spanish Army, being employed five times as a security guard, and also working as a porter, chauffeur, and maintenance engineer.

The busdriver had a medical examiner's certificate dated April 6, 1991, indicating that there were no noted medical conditions or illnesses that would impair his ability to operate a commercial vehicle. Greyhound took blood and urine samples from the busdriver for toxicological testing on August 3 at 4:45 p.m.; the results were negative for alcohol and drugs. Immediately after the accident, Greyhound fired this busdriver.

Licenses.--The busdriver had been issued a learner's permit on July 25, 1990, and held a valid District of Columbia chauffeur's license issued on September 4, 1990, which allowed him to operate a commercial vehicle in interstate transportation. The busdriver stated that he had never obtained a driver's license or owned a car while living in New York. His total driving experience was limited to an 8-month period when he occasionally drove an 18-foot-long passenger van and a 24-foot-long U-Haul truck. A check of the busdriver's motor vehicle record (both in Washington, D.C., and New York) did not reveal any record of motor vehicle violations. The busdriver was employed by Greyhound on May 30, 1991. His Greyhound personnel file indicated that on July 30, 1991, the busdriver struck another bus while backing into a parking stall at the Washington, D.C., terminal. As a result of the accident, the driver had to attend a 1-day driver refresher course given by Greyhound.

Training.--The Caroline busdriver began the Pro Drive training course on April 28, 1991, in Newark, Ohio, and graduated on May 17, 1991. There were about 60 students in his class, 52 of whom graduated. Pro Drive's records show that the busdriver received a total of 144.5 hours of training in the course: 77 hours in the classroom, 38.5 hours on the driving range, and 29 hours on the road. The busdriver completed the course with a score of 86 percent. Three students of the 52 graduates had either the same or lower scores as the Caroline driver.

Greyhound could not locate the first 3 days of the driving skill evaluation sheets (April 30 through May 2). On the fourth and fifth days, with the exception of "personal appearance," the driver did not score above a "poor" on any skill. During the next 3 days, the driver received 24 "poor," 79 "good," and 3 "excellent" scores. The remarks included: "student is demonstrating forward progress in above noted areas," "very good day, all areas satisfactory," and "conforming to

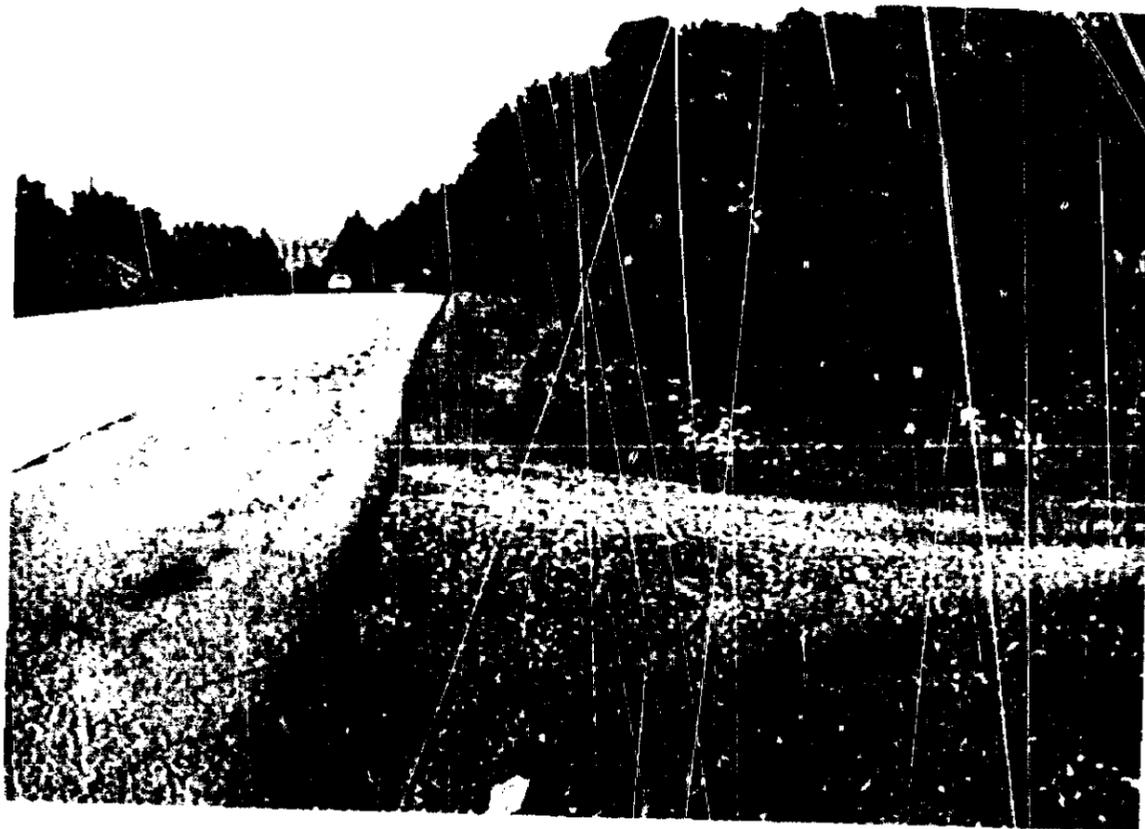
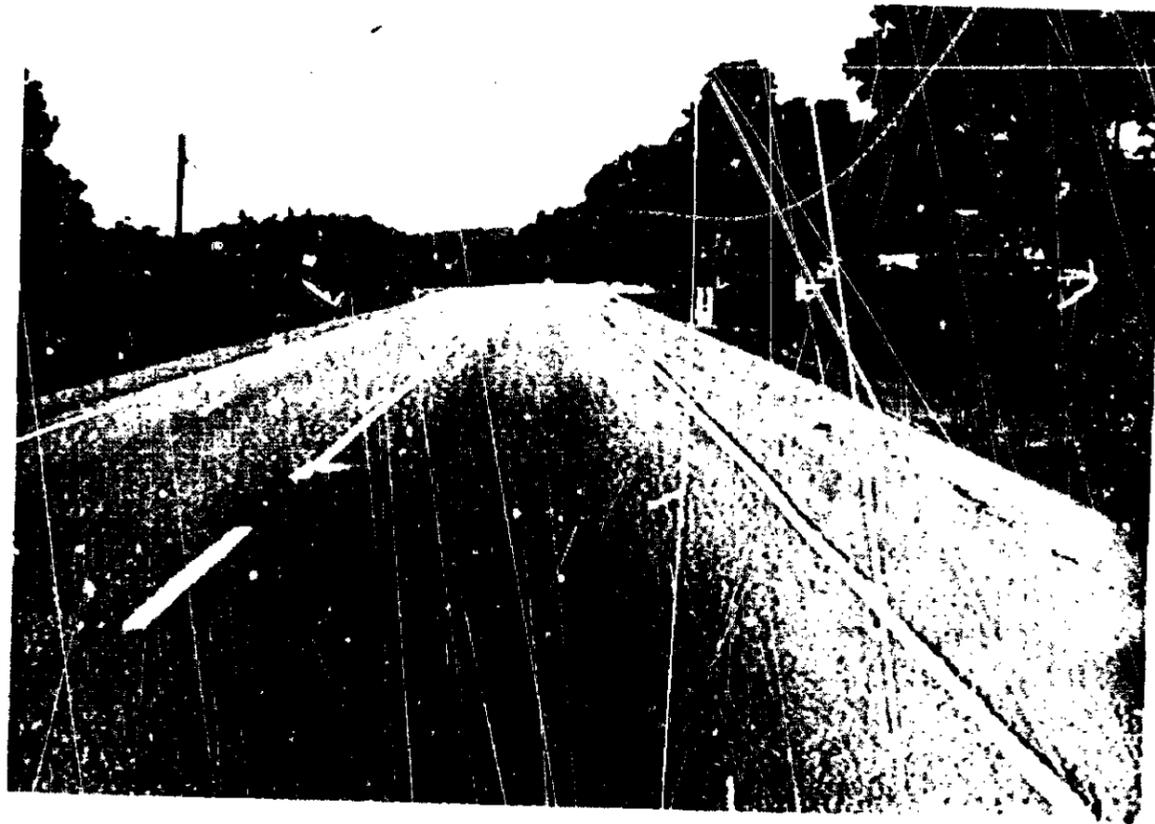


Figure 8.--Roadway at Caroline accident site.

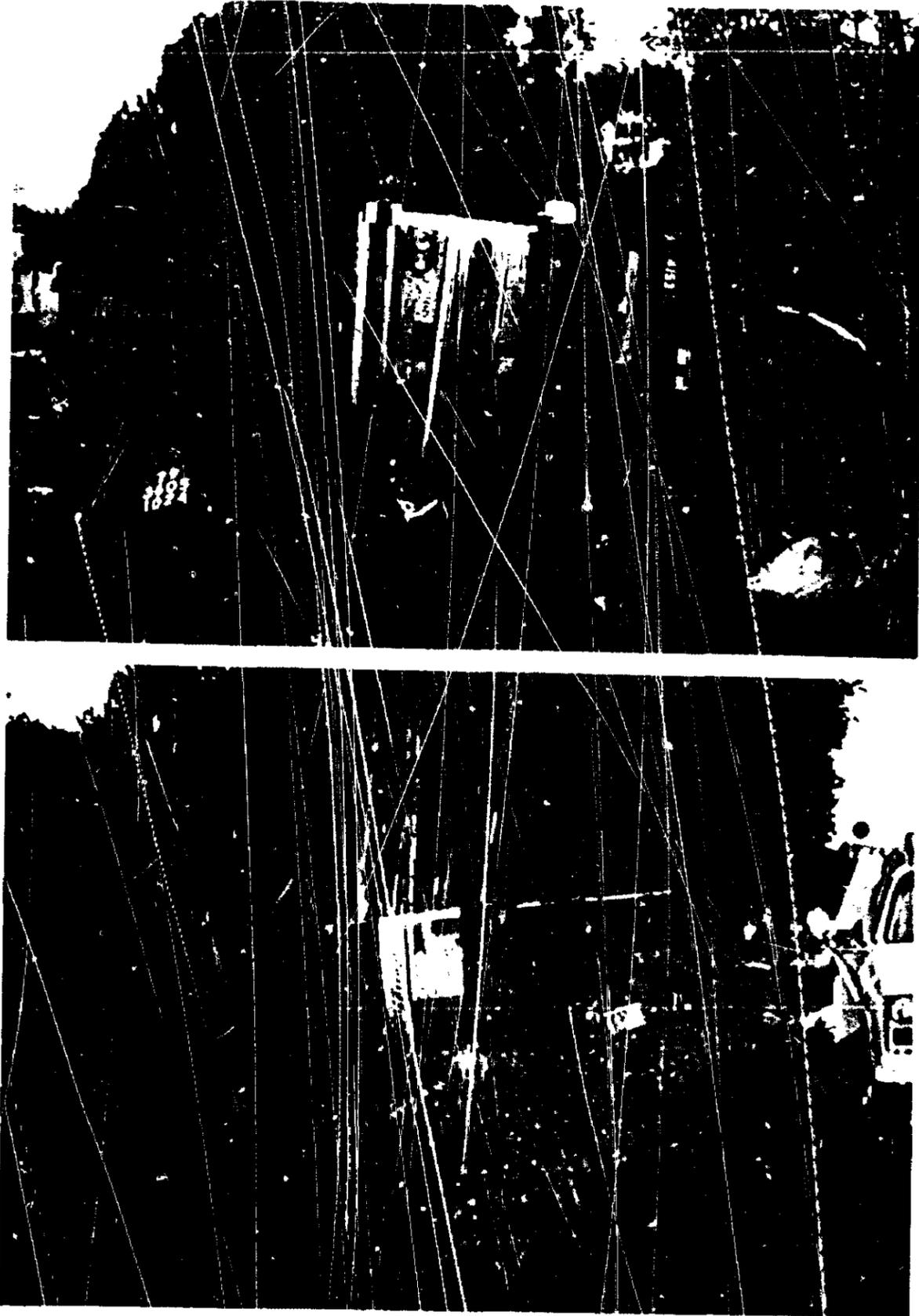


Figure 9.--Resting position of Caroline accident bus.

standards with consistence." On the final day of behind-the-wheel instruction, the driver received almost all "excellent" scores. He stated that he felt confident that he had very good training when he graduated. He then returned to Washington, D.C., to attend orientation.

Preaccident Schedule.--After being off duty for 3 days, the busdriver reported to work on Tuesday, July 30, and drove a bus from Washington, D.C., to New York City. He arrived in New York City at 9:30 p.m., went off duty at 10 p.m., and then showered, changed clothes, and went out to eat. He returned to the garage at 2 a.m. and went to sleep in the bus dormitory. About 9 a.m. on Wednesday, the dormitory attendant woke him for a 10 a.m. report. He was on protection⁸ from 10:30 a.m. until 1 p.m., when he was assigned to drive from New York City to Richmond, Virginia, via Washington, D.C. After arriving in Richmond at 9:15 p.m., he cushioned back to Washington, D.C., went off duty at 11:45 p.m., and remained off duty until Friday morning. On Friday, August 2, the driver stated that he slept for 9 1/2 hours before being called for work at 7 a.m. and reported at 9 a.m. to the Washington, D.C., terminal. He was on protection until 12 noon; at 12:30 he departed for New York City.

He arrived in New York City at 5 p.m., went off duty, and went to visit his ex-girlfriend and his 6-year-old son. At 7:30 p.m., he ate dinner, which consisted of pork chops, rice, beans, and salad, and he drank one beer. He played some games with their son and then went to bed about 9 p.m. and slept until 12:30 a.m. on Saturday, August 3. He woke up to call the dispatcher who told him to report to the terminal immediately for a trip. He arrived at the terminal and was assigned to drive the second of two buses going to Buffalo. The trip, normally scheduled to depart at 1 a.m. and arrive in Buffalo at 10:30 a.m., was overbooked. After loading the passengers and luggage, the buses departed from New York City about 1:20 a.m. and stopped in Binghamton, New York. There was a 1/2 hour rest stop before the buses departed for the next stop, Ithaca, New York.

About 25 miles west of Binghamton, both buses pulled off the roadway for 5 minutes to check the tag axle on the lead bus. However, there was no problem, and the buses continued on their way. The busdriver stated that he did not feel tired at any time during the trip and that he felt no discomfort while driving. He stated that he was wearing his lap belt during the accident.

Operations Information

Greyhound provides passenger and package freight bus service in the 48 contiguous States. Following the employee labor strike in March 1990, Greyhound reduced its operating capacity by nearly eliminating its charter service, reducing the number of scheduled runs, and leasing some routes to other carriers. In addition, the corporation reduced its number of buses from approximately 3,211 to 2,381 and its number of drivers from approximately 6,500 to 3,900. Of the 3,900 drivers that Greyhound currently employs, about 600 are pre-strike drivers, about 2,400 were hired following the strike and trained by Greyhound, and about 900 were trained by third-party contractors.

⁸A term used by Greyhound designating a busdriver "on duty," either at the terminal or the garage, and ready to drive a bus when the need arises.

The United States is divided into six Greyhound operating regions. Each region has a regional manager, two regional safety coordinators, and numerous driver managers. The driver managers are responsible for monitoring, documenting, and evaluating driver performance; investigating passenger complaints involving the drivers; and administering disciplinary action when warranted.

The Cleveland, Ohio, driver manager (the Donegal busdriver's supervisor) supervised 68 drivers. This manager had been employed by Greyhound for 10 years and was a Greyhound busdriver before being promoted to her current position. The Washington, D.C., driver manager (the Caroline busdriver's supervisor) supervised 217 drivers and had been employed with Greyhound for 22 years, although never as a busdriver.

When busdrivers begin driving for Greyhound, they are assigned to the extra board⁹ and can be called anytime to drive. They are used to supplement scheduled runs when a run is overbooked or to fill in for a scheduled driver. About 50 percent of the Greyhound drivers are scheduled route drivers, and about 50 percent are extra board drivers.

Driver Recruitment and Qualifications

Prospective Greyhound busdrivers in the eastern United States are recruited and screened by the Emrep Corporation, a carrier recruiting service based in Green Bay, Wisconsin. A Greyhound driver applicant must meet the following employment standards established by Greyhound:

1. Must possess a valid driver's license in the State of residence.
2. Must be able to pass a physical examination in accordance with the Federal Motor Carrier Safety Regulations and any other applicable laws and regulations.
3. Must have a negative result on drug/alcohol screening and not use illegal drugs.
4. Must have no previous felony conviction(s) or driving conviction(s) related to alcohol or illegal drugs.
5. Applicants 21 to 24 years of age may be considered for hire if they meet the following conditions:
 - (a) Must be at least 21 on date of application.
 - (b) Must have an accident-free driving record for the 36 months prior to the date of application.

⁹Greyhound drivers who do not or cannot bid to drive on regularly scheduled or published trips.

- (c) Must have a minimum of 3 years prior driving experience in a car or large vehicle. This must be actual driving experience versus years that they have held a license.
- 6. Must have a driving record without excessive moving violations; i.e., not more than 3 moving convictions and/or accidents in past 3 years, no reckless or careless driving convictions, and no revocations or suspension or denial of license for driving-related violations in past 3 years.
- 7. Must be sufficiently literate and possess the mathematical skills necessary to perform the requirements of the position, including:
 - (a) Reading schedules and written traffic condition warnings, baggage tags, package express labels, etc.; prefer geographical skills and ability to interpret maps.
 - (b) Processing accident and incident reports, etc.
 - (c) Preparing reports requiring addition, subtraction, and multiplication such as pay claims, hours of service, hours of duty, miles driven, etc.
- 8. Must be able to lift up to 100 pounds.
- 9. Must be able to meet the public, be courteous, and be able to handle stressful situations that may arise out of dissatisfaction on the part of the travelers. Must be willing to adhere to company uniform and grooming policies, including maintenance of proper hair length.
- 10. Must successfully complete the driver training program.

After the applicants have been screened successfully, they are required to attend the 3-week training course offered by Pro Drive, Inc., a Delaware corporation based in Green Bay, Wisconsin. The following statistical information supplied by Greyhound shows the number of persons who sought employment as Greyhound busdrivers and the number who actually finished training.

1991 GREYHOUND DRIVER HIRING/TRAINING STATISTICS

47,345	-	Leads from 1-800 number
5,641	-	Interviews conducted
1,969	-	Applicants invited to training schools
1,301	-	Graduates

35% of applicants interviewed are invited to school
 85% of applicants starting school actually graduate
 2.4% of people asking about employment graduate

Greyhound Training Program

According to a previous Safety Board report,¹⁰ prior to March 1990, initial training for new Greyhound drivers consisted of a 6-week program of classroom and behind-the-wheel instruction. The first 3 weeks of training were spent at a Greyhound driving school where the driver received approximately 70 hours of classroom instruction and about 20-25 hours of behind-the-wheel training. At the conclusion of the third week in the training course, Greyhound staff administered a written examination and a road test. A new hire had to pass both tests before he or she could drive for the company. The next 2 weeks of training were spent with an instructor learning the specific routes in the driver's local area. The final week of training was spent with an experienced driver on a scheduled route to familiarize the new driver with company operations.

After the strike, Greyhound had a shortage of company recruiters, instructors, and funds with which to train its busdrivers. Consequently, the company decided to obtain training services through a contractor. When Greyhound contacted the Professional Truck Drivers Institute of America (PTDIA)¹¹ and inquired about reputable training schools, Pro Drive was among several training schools recommended.

Pro Drive employs 126 people including 80 driver instructors and has training facilities in Racine, Wisconsin; Newark, Ohio; and Greenville, South Carolina. The company's primary business is to recruit and train truckdrivers for about 20 large trucking companies. Pro Drive's truckdriver training curriculum has been certified by the PTDIA and accredited by the National Association of Trade and Technical Schools. The training school has been operating for about 14 years under the company name "American Truck Driver Training, Inc."

In November 1990, Pro Drive began a pilot program in Greyhound driver training with a class of 42 students. Greyhound provided Pro Drive with a 3-week-long course curriculum, and Pro Drive provided classroom instructors and the training facility for the course. The course consisted of approximately 142 instructional hours that included classroom training on the theory of bus driving and practice driving on an off-highway range and on public roads. Greyhound considered the pilot program successful, and regular training classes began in March 1991.¹²

Two Pro Drive corporate officers stated that they prefer students with no previous truck or bus driving experience for the course because inexperienced students have not developed bad driving habits. The class size for the course averaged 60-70 students; classes were divided into 2 groups of 30-35 students. Pro Drive instructors were responsible for the training and for student progress evaluations. Greyhound provided its own trainers to train Pro Drive instructors and had observers/consultants at the training facilities. The first week of school

¹⁰ Highway Accident Report--Greyhound Lines, Inc., *Intercity Bus Loss of Control and Overturn, Interstate Highway 65, Nashville, Tennessee, November 19, 1988* (NTSB/HAR-89/03).

¹¹The Professional Truck Driver's Institute of America (formerly Trucking Industry Alliance--TIA) was established in 1985 by a coalition of motor carriers, owner-operators, manufacturers, equipment suppliers, trade associations, and other groups and individuals closely involved with the trucking industry.

¹²See appendix E for Pro Drive training school fee information.

included orientation, classroom training, and other activities such as learning to conduct pre-trip inspections and driving around cones on the practice range. Students alternated classroom with behind-the-wheel training every other day. During this 3-week period, they received 2 days off.

According to Greyhound's safety director, the major difference between the original Greyhound training and the new training was the extension of classroom instruction by 3 days, the extension of the cubbing¹³ period by about 2 days, and the elimination of 1 week of behind-the-wheel training at the driver's home terminal.

Routing and Directions

Greyhound publishes schedule pamphlets for different areas of the country showing established routes and stops. These routes are updated periodically with regard to customer usage and road conditions. The Capacity Manager for Greyhound stated that the travel times for the routes are generally computed by the miles between cities or stops. Greyhound officials stated that they allow an average of 3 minutes to load or unload passengers at each intermediate stop.

The driver managers at each terminal are responsible for establishing route directions. There are no standards for written route directions; some are narratives, some are diagrams, and others are a combination of both.¹⁴ On September 16-18, 1991, Safety Board investigators drove both accident bus routes. In driving the Donegal accident route, they found the narrative-format route directions from Cleveland to Pittsburgh gave the wrong street names, omitted certain other street names, and at one point, near Youngstown, Ohio, directed the driver onto a road going the wrong direction. The directions from Pittsburgh to Washington, D.C., were provided to the Donegal driver in the form of diagrams. These directions listed wrong highway names and wrong exit identification numbers. Also, there was no indication of the distances between points on the diagrams.

Greyhound Customer Complaint Process

Greyhound officials were questioned on the company's policy for handling customer complaints concerning unsafe driving. They replied that complaint letters received by Greyhound Headquarters are forwarded to the regional driver managers for investigation and corrective action, if warranted. If the complaint is not serious, the regional driver managers do not need to respond to Greyhound Headquarters. The Cleveland driver manager stated that if a telephone complaint was received about a driver, it would be forwarded to her immediately for investigation and disposition. She stated that she did not receive a complaint about the Donegal busdriver on the day of the accident. However, following the accident, Pennsylvania State Police received a complaint concerning this driver from two passengers (mentioned earlier) who traveled from Youngstown to Pittsburgh on the accident bus. Safety Board investigators were given the information, and it

¹³The phase of Greyhound student driver training in which the student driver accompanies a regular run operator on his or her tour of duty. The student drives the bus, takes tickets, unloads packages, and receives instruction en route from the regular run operator.

¹⁴See appendix F for a copy of the narrative and diagrammatic directions that Greyhound supplied to the Donegal busdriver.

was passed on to Greyhound officials. The passengers who filed the complaint stated that when they told a ticket agent in Pittsburgh about the busdriver's unsafe driving, he sent them around the corner to find the dispatcher. The passengers could not find the dispatcher, so they went home. Later, they called Greyhound to complain and were told that the ticket agent was not a Greyhound employee. At that point, the passengers called in the complaint to the State police.

In January 1992, Greyhound began implementing new complaint procedures. A toll-free telephone number for registering complaints, "1-800-34-SAFETY," will be placed on the inside and outside of Greyhound buses. Also, Greyhound is in the process of implementing a customer evaluation program to solicit comments from the public about Greyhound's service.

Additional Greyhound Training

Cubbing.--The Cleveland, Ohio, and Washington, D.C., driver managers explained that cubbing was designed for new busdrivers to learn the routes and the procedures for ticketing and for loading and unloading passengers and baggage. Both driver managers indicated that cubbing was not intended as additional behind-the-wheel training. The cubbing process begins at the student's home terminal as soon as he or she completes Pro Drive training. During this period, students are not yet considered full-time drivers and may not drive passengers on their own.

Greyhound officials stated that cubbing is usually a 10-day process; however, there is no mandatory time limit. During the cubbing process, driver-instructors are required to complete a "Regular Operators Report on Student Driver." This form includes students' trips, the hours that they drove, and a rating of either "satisfactory" or "unsatisfactory" for 23 driving skills and 13 general skills. Greyhound stated that the cubbing reports on both drivers were either lost or misplaced.

Refresher Reports.--Additionally, Greyhound requires the completion of "Refresher" reports that are similar to the "Regular Operators Report on Student Drivers." Refresher reports are normally completed when remedial instruction is needed, such as when a driver is involved in an accident. These reports require a rater to evaluate drivers' performance as either "satisfactory" or "unsatisfactory" on a variety of driving skills. There is also an area for notation of any safety films shown, attitude of the student, and other written remarks that the instructor may want to make. Refresher reports were also used for the students who were in the cubbing process but had not yet obtained their CDLs.

Cubbing and Refresher Reports for Donegal and Caroline Drivers.--Because the Donegal busdriver did not have her CDL, a driver instructor took her and other unlicensed students to Cleveland area cities for route break-in from June 9 through June 21. In addition, according to Greyhound's records, the busdriver traveled round trip from Cleveland to New York City, from Cleveland to Syracuse, from Cleveland to Columbus, and from Cleveland to Cincinnati. However, the busdriver stated that she only went from Cleveland to New York City during her cubbing period. On that trip, she slept during the day at the New York City terminal before riding on another bus from New York City back to Cleveland. The rest of her cubbing was limited to driving in the Cleveland area. She said that while cubbing, she was told that she should pay attention and take notes on directions, but if she

got tired, she could sleep. On this trip, she took notes on directions during part of the trip and slept during the rest of the trip.

During the first week of cubbing, there were no refresher reports on the Donegal busdriver. In the second week of cubbing, 5 days of refresher reports rated the busdriver as "satisfactory" on all items listed. On June 17, 18, and 19, her driver instructor noted in the remarks area that she "needs more practice." On June 19, the driver manager also rated her and wrote "drives good over the road, seems confident." On June 20 and 21, the driver instructor wrote "satisfactory." When the driver instructor was asked in a telephone interview how the Donegal busdriver had progressed from "needs more practice" to "satisfactory" overnight, he stated that she had improved. He also said that she was nervous but that she performed "pretty good with instruction."

After graduating from Pro Drive on May 17, the Caroline busdriver stated that he took turns driving with other students on an empty bus traveling from Washington, D.C., to New York City, Atlantic City, Cleveland, Roanoke, Winston-Salem, and Philadelphia. Greyhound could not supply any cubbing or refresher reports on this busdriver. On June 7, he completed cubbing and was eligible to begin driving alone.

On July 1, 1991, the Greyhound Director of Safety issued a memorandum to the Regional Managers of Driver Operations regarding new drivers. The memo states:

ROUTE BREAK-IN (CUBBING)

Every new driver will drive at least 10 days on the primary routes at the hiring location. This does not mean ride and take notes for 10 days - it means 10 days on line 3 of the driver's daily log [actual driving time], with a minimum of 5 hours a day driving time.

Every driver who has a student will complete a Form SF-42 Regular Operators Report on Student Driver. This form is to be reviewed by the Driver Manager for driving time, as well as satisfactory progress, and filed in the driver's personnel file.

PROBATIONARY PERIOD

Every driver who has a hire date of 1991 will be ride/road checked twice by September 1, 1991. The priorities are with those drivers who were hired most recently, and those who are near the end of their 90-day probationary period. The ride will be at least 50 miles in duration, with a copy of the road/ride check report to be forwarded to my attention for the D.O.T. files. Utilize the Regional Safety Coordinators, Driver Managers, Driver Supervisors, and Driver Instructors. Those drivers whose performance is not satisfactory, either driving or non-driving, will be removed from service and given a refresher course, with a follow-up ride check within 10 days.

Federal Oversight

All commercial interstate bus operations are subject to the Federal Motor Carrier Safety Regulations¹⁵ (FMCSR), which govern safety equipment, vehicle maintenance and inspection, driver qualifications, and motor carrier operations.

The FMCSR are established by the Office of Motor Carrier Safety (OMCS), Federal Highway Administration (FHWA), which also conducts periodic compliance and safety reviews of motor carriers. A satisfactory rating was issued to Greyhound on February 20, 1990. In March 1990, several compliance reviews were conducted in Greyhound terminals throughout the country. During these reviews (which only included driver qualification files), some documentation violations were found, including missing documents, missing information, and original documents not on file. These documentation violations did not change the satisfactory rating, however.

From September 9 to October 25, 1991, OMCS conducted another compliance review of Greyhound. During this period, OMCS reviewed Greyhound's revised scheduling of runs (with particular regard for drivers involved in fatigue-related accidents), recruiting, selection of drivers, adequacy of training, and employment history and background. OMCS concluded that there was no connection between accidents and scheduling, and that, while there were some "hours of service" and "logbook entry" violations, there were no significant infractions. Therefore, on December 4, 1991, Greyhound was rated "satisfactory."

Accident Statistics

FHWA's OMCS gathers information on reportable¹⁶ accidents and mileage of commercial buses while conducting some motor carrier safety and compliance reviews. OMCS's review of Greyhound's 1990 reportable accidents showed that the total number of accidents increased slightly over the number of accidents reported in 1989, while the mileage logged for the same period was down more than 100 million miles. (See table 1.)

¹⁵49 CFR Parts 325, 350, 383, and 385-399.

¹⁶Reportable accidents are any occurrence involving a commercial motor vehicle engaged in the interstate, foreign, or intrastate operations of a motor carrier subject to the Department of Transportation Act resulting in (1) the death of a human being; or (2) bodily injury to a person who, as a result of the injury, immediately receives medical treatment away from the scene of the accident; or (3) total damage to property of \$4,400 or more based upon actual costs or reliable estimates.

Table 1.--Greyhound Reportable Accident History Analysis

	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>
Total reportable accidents	182	207	216	153
Total fatalities	15	16	26	8
Total injuries	359	636	605	312
Fatal accidents	11	14	11	8
Nonfatal injury accidents	115	138	127	94
Property damage accidents	56	55	78	51
Total property damage	\$2,494,568	\$2,589,110	\$3,448,624	\$2,099,501
Total mileage	355,614,000	366,070,000	253,155,000	249,595,000
Reportable accident rate (accidents per million miles)	.51	.57	.85	.61

Greyhound hired 3,000 new drivers in 1990 and 1,000 in 1991. Greyhound stated that 965 of the total of 1,125 (reportable and nonreportable) accidents occurring in 1990 involved drivers who had been hired in 1990, and 81 of the 772 accidents occurring in 1991 involved drivers who had been hired in 1991.

Commercial Driver's License Program

The Commercial Motor Vehicle Safety Act of 1986 was promulgated to improve highway safety by ensuring that drivers of large trucks and buses are qualified to operate those vehicles on the highway. The Act requires the FHWA to establish minimum national standards for licensing commercial motor vehicle drivers.¹⁷ Each State is required to administer testing and licensing for commercial drivers to ensure that they meet the minimum qualifications. Drivers nationwide must have the new CDL in order to drive a commercial vehicle after April 1, 1992.

Commercial Driver Training

General.--When operating interstate, commercial busdrivers are subject to most of the same FMCSR requirements as truckdrivers. Although there are no requirements or standards for training truckdrivers or busdrivers, the following Federal guidelines were developed for truckdrivers and are being used by the industry.

FHWA Model Curriculum and Truck Operator Qualification Examination.--In 1984, FHWA developed the "Model Curriculum for Training Tractor-Trailer Drivers (Model Curriculum)." The program was designed to provide minimum curriculum requirements for driver training programs and to provide standards for training materials, vehicles, facilities, and instructor hiring.

The Model Curriculum includes student, instructor, and administrator manuals and a book of proposed minimum standards for training tractor-trailer drivers. These training standards are intended to serve as a guide to be used at the discretion of the user and are not promulgated as federally mandated requirements. (FHWA publishes a brochure explaining the Model Curriculum goals, specific subjects and organization, and the cost and source of program manuals.)

¹⁷See appendix G for a listing of the commercial driver's license standards

In December 1989, PTDIA completed a study for FHWA titled "Evaluate the Use, Acceptance, and Effect of FHWA's Tractor-Trailer Driver Training Standards and Curriculum." Briefly, the PTDIA found that:

The FHWA "recommended practices" and "model curriculum" have a significant effect on the courses surveyed. It appears that organizations have revised their courses, rebuilt or remodeled their training programs, and implemented curriculum changes in an effort to "comply" with the recommended practices. This progress is particularly interesting since "compliance" is being achieved voluntarily.

The FHWA stated that it does not regulate training schools or support federally mandated truckdriver training standards because private sector efforts, such as those of PTDIA, are addressing the issue.

In the early 1980s, the National Highway Traffic Safety Administration initiated the Truck Operator Qualification Examination (TORQUE), which involved the development of a series of knowledge and performance tests for heavy vehicle operators. In addition, TORQUE consisted of various manuals for the license administrators and State examiners.

Both TORQUE and the Model Curriculum were used as the basis for the CDL standards and actual skills tests. The knowledge and skills tests included in the CDL Program measure driver ability and essentially set performance standards for skills obtained from driver training.

Professional Truck Driver's Institute of America.--The PTDIA's goal is to improve the quality and effectiveness of tractor-trailer driver training. To accomplish this aim, the PTDIA developed criteria for voluntary certification of tractor-trailer driving programs. The PTDIA certification criteria are based on FHWA's model curriculum. To date, PTDIA has certified 46 schools nationwide with a projection of about 14,000 graduates annually. The PTDIA brochure states:

Formal training is the most reliable way to learn the special skills required for safe truck driving. The more driving skill that is obtained through supervised training, the less remains to be learned on the job. Therefore, an effective formal training system can be expected to reduce the reliance on experience to teach safe driving practices to enhance the knowledge factor and safety consciousness.

Ohio Oversight of Commercial Driver Training Schools

The Ohio State Highway Patrol (OSHP) has set criteria for commercial driver training schools and their instructors under Ohio Revised Code, Chapter 4508, and the Administrative Rules, Chapter 4501-7.¹⁸ Licenses for all four types of

¹⁸In January 1991, the OSHP had initiated a change of the Administrative Rules. The proposed Administrative Rules are in the process of being adopted.

commercial driver training schools must be renewed yearly.¹⁹ Class "C" schools are required to provide theoretical and practical instruction in the operation of trucks, commercial cars, tractors, trailers, and semitrailers. Although the class C category does not specifically mention training in the operation of buses, OSHP officials stated that this category would be the one to include busdriver training. The class "C" school must offer at least 40 hours of "practical instruction." Practical instruction must include but need not be limited to starting, stopping, turning, braking, and parking maneuvers. Overall, it must consist of the following:

- Not less than 10 hours of practical instruction on off-road ranges with no traffic other than commercial vehicles.
- Not less than 10 hours of practical instruction on streets and highways with normal traffic.
- Not less than 20 additional hours of either highway or range instruction.

Theoretical instruction must include but need not be limited to State laws and regulations, FMCSR rules and regulations, safe and courteous driving practices, and routine and pre-trip safety checks. Students tested on theoretical instruction must score 75 percent or higher.

Successful candidates for a class "C" instructor's license:

- Must have completed a 40-hour instructor's course.
- Must have been licensed as the operator of a motor vehicle for at least 5 years and have at least 3 years experience in the operation of a truck or commercial "tractor outfit" weighing 2 tons or more.

State CDL Programs

The District of Columbia has tested 3,000 of 6,000 commercial drivers for CDL certification and began issuing CDLs in January 1992. (The Caroline busdriver did not have a CDL because the District of Columbia had not yet begun to issue CDLs at the time of the accident.)

In Ohio, the OSHP administers CDL written tests. The OSHP contracts to third-party testers to administer CDL skills tests at two State-run sites while the Bureau of Motor Vehicles actually issues the CDL. Of the 58 third-party testers, 42 are private and 16 public. The third-party testers are inspected by OSHP annually. From November 1990 through July 31, 1991, the State of Ohio issued 97,361 CDLs.

¹⁹Class A includes training for passenger cars and noncommercial motor vehicles; Class B includes training for motorcycles, motorscooters, or motorized bicycles; Class C includes training for trucks, commercial cars, tractors, trailers, and semitrailers, and motor vehicles transporting flammable and/or hazardous cargo; and Class D includes schools with training facilities located outside of the State of Ohio that wish to recruit and train Ohio residents.

The CDL tests include the eight knowledge tests listed below:

- General Knowledge Test, taken by all applicants.
- Passenger Transport Test, taken by all busdriver applicants.
- Air Brakes Test, required if the vehicle has air brakes.
- Combination Vehicles Test, required to drive combination vehicles.
- Hazardous Materials Test, required to haul hazardous material or waste.
- Tanker Test, required to haul liquids in bulk.
- Doubles/Triples Test, required to pull double or triple trailers.
- School Bus Endorsement Test, required in addition to the Passenger Transport Test for all school busdriver applicants.

After passing the required knowledge tests with a minimum score of 80 percent, a new driver applicant is required to take the CDL skills tests, which consist of the pre-trip inspection test, the basic control skills test, and the road test. These tests must be taken in the class of vehicle for which a person wants to be licensed. Applicants are given a Commercial Driver Handbook, which provides necessary information to pass the knowledge and skills tests. All the knowledge tests must be passed in sequence before the skills tests will be administered.

According to the OSHP, there is a 24-hour waiting period between CDL tests when a person fails a written test, and a 7-day waiting period between CDL tests when a person fails a skills test. However, the third-party tester allowed the Donegal busdriver to take a CDL skills test on the third day after she failed the first test. Although the OSHP permits third-party testers to waive the 7-day requirement, they must first obtain authorization from OSHP. As a result of an OSHP investigation concerning the Donegal accident, it was discovered that the Donegal busdriver's CDL tester had waived the 7-day waiting period for 170 other applicants without authorization. The OSHP warned the tester that any future violations would result in termination of the tester's contract. Follow-up inspections have shown no violations.

On May 14, the busdriver was issued a temporary permit to take the CDL tests. To obtain a CDL with a "passenger" endorsement, the Donegal busdriver had to pass the three applicable written tests with a minimum score of 80 percent. Of the three skills tests, she had to pass the pre-trip test with a minimum score of 80 percent and the control skills and road tests on a pass/fail basis. The scores in table 2 reflect her test record.

Table 2.--Donegal driver's CDL test record

<u>Date</u>	<u>Test</u>	<u>Score (percent)</u>
May 16	General Knowledge	56 (failed)
May 17	General Knowledge	82 (passed)
May 17	Air Brakes	76 (failed)
May 17	Passenger Transport	69 (failed)
June 12	Air Brakes	64 (failed)
June 12	Passenger Transport	85 (passed)
June 14	Air Brakes	80 (passed)
June 17	Pre-trip	84 (passed)
June 17	Basic Control Skills	passed
June 18	Road	failed ¹
June 21	Road	passed

¹Failed the road test for traveling 50 mph in a 35 mph zone, which is considered unsafe.

ANALYSIS

The Accidents

General--The Safety Board concludes that neither the highways' design nor the condition of the vehicles contributed to these accidents. The Donegal accident occurred on a dry, straight upgrade, and although the bus traveled through a cable guardrail, these guardrails are not designed to redirect heavy commercial vehicles. The postaccident inspection revealed that there were no mechanical problems with the bus' steering or brakes and, although the tires on the tag axle were underinflated, this would not have significantly affected the gradual steering maneuver described by the witnesses.

The buses adequately maintained their structural integrity considering the overturns that occurred in these accidents. The fatally injured passenger in the Donegal accident was seated in the area subjected to extensive roof crush. However, the majority of passengers in both accidents received minor to moderate injuries or were uninjured. No alcohol or drugs were involved in either accident.

Donegal Accident--According to witnesses, the bus was traveling in the center lane at approximately 70-75 mph, and then gradually moved in front of a tractor-semitrailer and ran off the road at about a 7-degree angle. There were no marks on the roadway from the bus. The tire marks in the right lane were angled leftward, were commensurate with the truck's reported position, and therefore, were probably made by the truck. There were no indications that the busdriver performed any evasive steering or braking maneuvers and no indications that a mechanical or highway condition caused the bus to move rightward. The busdriver simply failed to recover from a lane change.

Caroline Accident--The accident sequence began when the bus moved toward the left; however, no mechanical problems were discovered that could have caused this movement. The bus' tires were in good condition. Although it was drizzling at the time of the accident, there was not a significant amount of water on the roadway; the lead bus negotiated this straight section of roadway

without incident. Therefore, it is unlikely that the wet roadway independently caused the driver to lose control. Once the bus began moving leftward, the driver initiated a rightward steering maneuver and began braking. The bus tires probably lost traction because of the combination of the steering and braking maneuvers made on the wet roadway.

Similarities Between the Accidents

Route Familiarity.--Both busdrivers were traveling the accident routes for the first time, and both had expressed concern about their unfamiliarity with the routes. In the Donegal accident, the busdriver's difficulties with the route directions may have caused some stress. She stated that she was nervous when assigned to drive a bus to Washington, D.C., because she had never driven there before. Greyhound provided her with written directions and diagrams; however, some of them were incorrect and unclear, and she got lost several times and had to turn around and double back to correct her mistakes. The Caroline busdriver acknowledged that he was unfamiliar with his route, and as a result, attempted throughout the trip to maintain about one car length between his bus and the lead bus to prevent other vehicles from getting between the buses. This was confirmed by one of the bus passengers, who told investigators that the driver would speed up occasionally to keep up with the lead bus. Therefore, the Safety Board concludes that the unfamiliarity with the accident routes increased both busdrivers' stress during the accident trips, adversely affecting their performance.

Driver Alertness.--Prior to each accident, the drivers had received limited rest. The Donegal busdriver had been on duty for 11 hours and had been driving for 5 1/2 hours. She had taken a 3-hour nap on the afternoon before the accident, slept for 4 hours (9 p.m. to 1 a.m.) before coming on duty, and napped for 1 1/2 hours before actually driving. The last time the Donegal busdriver had eaten was 12 hours prior to the accident. Although she stated that she was wide awake before the accident, her intermittent sleep pattern and the length of time without food may have degraded her physical stamina.

The Caroline busdriver indicated that he had slept for about 3 1/2 hours (9 p.m. to 12:30 a.m.) before the trip. Also, he had been driving for about 5 1/2 hours when the accident occurred. Although he also stated that he was wide awake while he was driving, the small amount of rest he received prior to the trip, in combination with night driving, may have affected his ability to operate the bus.

Highway driving, particularly at night, can be monotonous. Also, the human circadian rhythm produces a strong tendency to sleep during the early morning hours from 2 to 7 a.m. and, to a lesser degree, during the midafternoon hours from 2 to 5 p.m., regardless of whether an individual is well rested. It has been recognized that inadequate sleep, even as little as 1 or 2 hours less than usual, can greatly exaggerate the tendency for error during these "time zones of vulnerability."²⁰ Additionally, this research has shown that workers never fully adapt to irregular night shift routines. People have difficulty working at night, which the body normally reserves for sleep. When duty times are unpredictable as well as irregular, as they are for Greyhound drivers assigned to the extra board, the

²⁰Mittler, M.M., and others, *Catastrophes, Sleep, and Public Policy: Consensus Report*, Raven Press Ltd., La Jolla, California, 1988.

conflict can be intensified. Although both of the accident busdrivers had been off duty for several days preceding their accident trips, neither driver was accustomed to working or driving at night. The Caroline busdriver had been driving at night, when the body experiences decreases in visual acuity, cognitive functions, memory, and reaction time. The Donegal busdriver's accident occurred during the midafternoon, the other period of time shown to cause an increased tendency to sleep and diminished capacity to function.

In addition to the time of day that the Caroline busdriver was driving, the added stress of driving in the rain on an unfamiliar route may have further degraded his driving performance. A combination of physiological factors and other circumstances also adversely affected the Donegal busdriver's performance. Elements such as limited rest, lack of food, route unfamiliarity, and driver inexperience, combined with the time of the accident, probably affected the Donegal driver's ability to remain alert and attentive to the driving task. Although the Safety Board could not determine whether either driver fell asleep, it is apparent that neither busdriver had received adequate rest in the 24-hour period preceding their trips. Therefore, the Safety Board concludes that a combination of factors may have caused these busdrivers to be inattentive to their driving tasks.

In the November 1988 Greyhound bus accident report,²¹ the Safety Board addressed the importance of rest (including night work, shift work, and fluctuating schedules) and nutrition. The Safety Board recommended that Greyhound:

H-89-30

Institute a program to educate company busdrivers about the need for proper nourishment while on duty and also to educate both busdrivers and their families about the stresses imposed by night work and shift work, as well as the adverse effect these stresses can have on safe job performance.

In a letter dated November 14, 1991, Greyhound forwarded a driver training videotape entitled, "Fuel for Thought," and a training manual that includes a questionnaire and a sample diet plan. Greyhound officials informed the Safety Board that in October 1991, Greyhound had begun showing this videotape to its busdrivers. Greyhound also stated that it is also in the process of obtaining a videotape on stress and exercise to show its drivers. In its letter to Greyhound dated January 6, 1992, the Safety Board classified this recommendation as "Closed--Acceptable Action." Because Greyhound only started showing the new videotape in October 1991, neither of the accident busdrivers had the benefit of this training. However, the Safety Board is encouraged by this training and urges Greyhound to continue to educate its drivers about the importance of proper nutrition, proper rest, and awareness of the stresses imposed by shift work. The Safety Board also believes that Greyhound should develop effective policies that allow employees to turn down driving assignments and report off duty when they are impaired by lack of sleep or are otherwise unfit for duty.

²¹See footnote 10 on page 21.

Driver Inexperience.--Although both accident drivers had been licensed drivers prior to their employment with Greyhound, neither had a significant amount of driving experience. Based on her statements, the Donegal busdriver had probably driven a car about 2,000 miles or less since she obtained her driver's license. The Caroline busdriver had driven U-haul trucks occasionally, but his entire driving experience lasted only for the 8-month period of time before he was employed by Greyhound. The inexperience of both busdrivers was displayed during the accident trips. The Donegal driver entered a parking lot to turn the bus around, not realizing that the area she had chosen was too small for the turning radius of the bus. While maneuvering, she struck a concrete light support pole. Additionally, passengers described her driving from Cleveland to Pittsburgh as erratic, noting that she kept driving out of her lane, that she drove in the left lane excessively, that she kept hitting the brakes, making the ride jerky, that she was writing while driving, and that she was speeding. The passengers said, at one point, she almost ran a car off the road while changing lanes.

When the Caroline accident bus moved leftward, the busdriver may have oversteered or overbraked while redirecting the bus. The busdriver had attempted to remain about one car length behind the lead bus during the trip, and when questioned by Safety Board investigators, he did not recognize that this was an unsafe practice. Following that closely at highway speeds, the driver would not have been able to avoid a collision had the lead bus stopped suddenly. Four days prior to this accident, the busdriver had an accident backing a bus into a garage stall. Although the accident was minor, it indicates that he was unfamiliar with maneuvering the bus. Although both drivers graduated from a formal busdriver training course, their actions during the accident trips indicate that they may not have had enough practical driving experience. Therefore, the Safety Board concludes that neither of these inexperienced busdrivers possessed adequate driving skills to operate an intercity bus safely.

Greyhound requires that new driver applicants possess a minimum of 3 years prior driving experience in a car or a large vehicle and stipulates that this means actual driving experience and not just years having held a license. However, neither accident driver met this requirement when they were hired by Greyhound. Therefore, the Safety Board concludes that Greyhound failed to ensure that the busdrivers met the company's minimum driver experience employment standards.

Driver Training

Donegal and Caroline Drivers.--Throughout her training at Pro Drive, it was noted that the Donegal busdriver "needed more work." One area cited was her failure to use mirrors properly, which the off-duty Greyhound busdriver noticed on the accident trip. The driver's deficiencies in other driving skills such as steering, backing, and straight forward driving were also manifested in the accident trip. During the training course, she was marked "poor" for the first 4 out of 8 days of road training. The next 3 days were divided equally between "poor" and "good" ratings, and she received all "good" ratings on the last day. Therefore, within a 3-day period, she improved from a "poor" to a "good" driver. Although Pro Drive indicated that she received 68 hours of range and/or road training, she was probably only behind the wheel for about 30 hours because she was sharing the driving with other students. However, this is in excess of the OSHP's requirements of 20 hours of road or range training.

The first 3 days of the Caroline busdriver's driving skill evaluation forms were missing; however, on the fourth and fifth days he received "poor" for all the driving skills evaluated. Through the sixth, seventh, and eighth days, his driving skill evaluation improved to "good." On the ninth day, his driving skills were evaluated as "excellent." The remarks during these evaluations generally indicated that he was improving and conforming to standards. Although Pro Drive indicated that he received 67 1/2 hours of range and/or road training, the Safety Board believes that, as in the Donegal busdriver's case, he was probably behind the wheel for only about 30 hours. During the driver's cubbing period, he gained some additional behind-the-wheel experience. Although he received some additional training during cubbing and had been driving with Greyhound for about 2 months, the busdriver still did not possess sufficient driving skills. This lack of practical driving experience was exhibited during this accident trip. The Safety Board, therefore, concludes that the 30 hours of behind-the-wheel training was inadequate to prepare these individuals to drive an intercity bus.

In a previous Safety Board report,²² Safety Recommendation H-83-21 was issued to FHWA to amend the FMCSR (49 CFR Part 391, "Qualifications of Drivers") to include tractor-trailer driver training criteria. The FHWA later advised the Safety Board that in its opinion it would not be necessary to require this training criteria, because the stringent testing provisions of the CDL program would suffice as basic training. The Safety Board agreed with this, and on April 11, 1991, classified H-83-21 as "Closed--No Longer Applicable." However, the circumstances that occurred in the Donegal accident suggest that there may be potential weaknesses in the CDL program; although the Donegal busdriver received 3 weeks of formal training and eventually passed the necessary CDL tests, she was still unprepared to drive a commercial bus. The Safety Board realizes that the implementation of the CDL program is not complete, and will continue to monitor the progress of the CDL program and evaluate its effectiveness through accident investigations.

Greyhound Cubbing.--Both of these accidents illustrate that factors such as route unfamiliarity and lack of commercial driving experience can lead to poor performance. In both accidents, driver performance could have been enhanced through more behind-the-wheel training. According to the Pro Drive evaluation sheets, both drivers improved their driving skills during training; however, any such improvements occurred during a relatively short period of time and had not been reinforced by further behind-the-wheel training or practical experience.

Greyhound asserts that the current training includes more hours of training than the previous Greyhound training. But Greyhound also indicated that, in comparison, new drivers spend 1 week less in behind-the-wheel training at their home terminals. The Greyhound Safety Director indicated that cubbing is an extension of behind-the-wheel training. However, Greyhound terminal managers apparently did not view the cubbing process as behind-the-wheel training. They described it as an exercise strictly to learn the routes and the routine of handling passengers and baggage. The Safety Board concludes that although it may have been Greyhound's policy to use cubbing as additional behind-the-wheel training, the policy was not instituted at the accident drivers' terminals.

²²Highway Accident Report--J.C. Sales, Inc., Tractor-Semitrailer Calvary Baptist Church Van Collision, State Route 198 at 19th Avenue Near Lemoore, California, October 8, 1982 (NTSB/HAR-83/02)

Greyhound reported that the cubbing records for both drivers had been lost or misplaced. These records are important tools to be used by the instructors and managers when evaluating whether a student driver is prepared to operate the bus on his or her own. Some corrective action has been taken by Greyhound since the Donegal accident occurred. The Greyhound Safety Director issued a memorandum clarifying the purpose of the cubbing process and instructing that new drivers were to have a minimum of 50 hours actual driving time. He also directed that the cubbing reports on students must be filled out, reviewed, and forwarded for filing in the driver's personnel file.

During 1991, Greyhound hired about 900 drivers who were virtually new to driving commercial vehicles. Greyhound contracted with Pro Drive to train about half of these drivers and provided Pro Drive with a curriculum. The two busdrivers involved in these accidents had very little experience driving any type of vehicle. Their Pro Drive training scores and comments from the instructors indicated they both initially performed poorly in the driving skills portions of school. Both drivers were near the bottom of their class when they graduated.

The Caroline busdriver began driving as soon as he graduated because he was not required to obtain a CDL in Washington, D.C. The Donegal busdriver had to pass the CDL tests to obtain a license to drive. She failed: (1) the General Knowledge Test once, (2) the Passenger Transport test once, (3) the Air Brakes Test twice, and (4) the road test once. Thus, she failed CDL series tests five times in 1 week. When she finally passed the Air Brakes test, she received a minimally passing score.

Refresher reports at the Donegal busdriver's home terminal indicated that she needed more practice. The driver instructor also commented that she was "nervous" while driving and that she performed "pretty good with instruction."

The Safety Board believes that Greyhound had sufficient warning that the Donegal busdriver was unprepared to independently operate an intercity bus. Although indications were not as clear regarding the Caroline driver's abilities, the Safety Board concludes that if Greyhound had a program in place that identified drivers in need of more behind-the-wheel training, and then provided this training, both busdrivers may have been better prepared to operate their buses.

The Safety Board believes that Greyhound should implement a new driver certification program designed to identify those drivers experiencing driving-skill-related difficulties as they progress through the training, licensing, and cubbing processes. The program should include a provision for remedial training and supervised behind-the-wheel driving experience.

Although not an issue in these accidents, the Safety Board believes that because some new drivers lack experience, Greyhound should provide additional behind-the-wheel training during cubbing that will prepare drivers for conditions frequently encountered in their operating regions, such as mountainous terrain, inclement weather, or excessive traffic congestion. In addition, Greyhound should ensure that its cubbing program is being consistently adhered to throughout the company.

The Safety Board's 1986 study²³ on truckdriver training addressed the issue of training extensively. In this study, the Safety Board recognized that commercial vehicle driving requires special skills and stressed the need for formal training to ensure that a driver has the skills necessary for safe operation of a commercial vehicle:

An upgraded training system can be expected to produce increasingly skilled new drivers. As pointed out, the more a person learns in training about proper truck handling, the less he or she will have to learn in service. Nevertheless, the instructive role of experience is unlikely to be eliminated. When a new driver is just beginning to build up on-the-job experience, qualified supervision can help ensure that he or she develops only safe driving habits. Such supervision also can minimize the risk to the driver and to others on the road. An effective way of supervising new drivers would be through an apprenticeship program. There is currently no such nationally organized program in the United States.

Consequently, the Safety Board made the following recommendation to the Department of Labor (DOL):

H-86-26

Draft and issue national standards for apprenticeship programs in commercial truck driving, and include commercial truck driving in the Department of Labor's list of Occupations Recognized as Apprenticeable.

The recommendation has been classified as "Open-Acceptable Action" because officials at DOL stated that they were working on this. The Safety Board believes that the DOL should increase the scope of the commercial truckdriver apprenticeship program to include commercial busdrivers.

Tentative Changes.--The Safety Director for Greyhound verbally advised the Safety Board that since these accidents the company has been revising its training procedures. A tentative driver training plan for calendar year 1992 entails the hiring of about 400 new full-time drivers. Greyhound plans to conduct its own recruiting and will continue to hire third-party contractors to provide basic training. Greyhound advised that substantial changes will be made to the cubbing process and that the 2-week period of training currently in place will most likely increase to 3 weeks. The Safety Board is encouraged that Greyhound is attempting to address the training issue and believes that if enough emphasis is placed in this area, training will be substantially improved.

²³Safety Study--*Training, Licensing, and Qualification Standards for Drivers of Heavy Trucks* (NTSB/SS-86/02).

Accident Statistics

There was a substantial increase in the Greyhound accident rate for 1990 as compared with 1988 and 1989. The accident rate for 1991 exceeded the pre-strike years. However, due to numerous changes that occurred during and after the strike (including downsizing operations, changes in driver training programs, and reductions in service), the Safety Board could not confirm a direct cause and effect relationship between the increased accident rates and the hiring of new drivers.

Greyhound Route Directions

Of major concern to both accident busdrivers was their unfamiliarity with the routes. Additionally, the Donegal busdriver became lost and had many problems while following the Greyhound directions throughout the trip. Although the cubbing process is supposed to familiarize drivers with new routes, the Safety Board recognizes that occasionally drivers will have to take routes with which they are unfamiliar. When Safety Board investigators drove both accident routes, they discovered that the Greyhound route directions were confusing, hard to read, and wrong in some instances. The directions are neither standardized from terminal to terminal nor from city to city. The Safety Board believes that Greyhound should standardize the process for developing and presenting route directions provided to drivers and ensure that the directions are correct and easy to comprehend.

CONCLUSIONS

Findings

1. Neither the highways' design nor the condition of the vehicles contributed to these accidents.
2. Both buses adequately maintained their structural integrity considering the overturns that occurred in these accidents.
3. The Donegal busdriver failed to recover from a lane change.
4. The Caroline busdriver's rightward steering maneuver and braking actions on the wet roadway probably resulted in his loss of control.
5. Greyhound's route directions were unclear and incorrect, and this, combined with the busdrivers' unfamiliarity with the routes, increased both busdrivers' stress and may have adversely affected their driving performance.
6. The limited rest both busdrivers received prior to the accident trips was one of several physiological factors that may have caused these busdrivers to be inattentive to their driving tasks.
7. Although the Donegal busdriver had obtained an Ohio commercial driver's license, neither she nor the Caroline busdriver possessed adequate driving skills or experience to operate an intercity bus safely.
8. Although it may have been Greyhound's policy to use cubbing as additional behind-the-wheel training, the policy was not instituted at the accident drivers' terminals. In addition, the busdrivers' cubbing records were not properly maintained.

9. Greyhound had sufficient information to determine that both accident drivers needed additional behind-the-wheel training.
10. Greyhound failed to ensure that the busdrivers involved in these accidents met the company's own minimum driver experience employment standards.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the Donegal and Caroline accidents was the failure of Greyhound Lines, Inc., to ensure that the busdrivers had adequate training and experience to operate intercity buses safely, resulting in their inability to control their vehicles, which ran off the road and overturned.

RECOMMENDATIONS

As a result of its investigation, the National Transportation Safety Board made the following recommendations:

--to Greyhound Lines, Inc.:

Implement a new driver certification program designed to identify those drivers experiencing driving-skill-related difficulties as they progress through the training, licensing, and cubbing processes. The program should include a provision for remedial training and supervised behind-the-wheel driving experience. (Class II, Priority Action) (H-92-13)

Review the "cubbing" program as currently defined to ensure that it is being consistently adhered to throughout the company. (Class II, Priority Action) (H-92-14)

Standardize the process for developing and presenting route directions provided to drivers and ensure that the directions are correct and easy to comprehend. (Class II, Priority Action) (H-92-15).

During cubbing, provide new busdrivers with behind-the-wheel training that will prepare them to drive during conditions frequently encountered in their operating regions, such as mountainous terrain, inclement weather, or excessive traffic congestion. (Class II, Priority Action) (H-92-16)

Develop effective policies that allow employees to turn down driving assignments and report off duty when they are impaired by lack of sleep or are otherwise unfit for duty. (Class II, Priority Action) (H-92-17).

--to the U.S. Department of Labor

Increase the scope of the commercial truckdriver
apprenticeship program to include commercial busdrivers.
(Class II, Priority Action) (H-92-18)

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

/s/ Susan M. Coughlin
Acting Chairman

/s/ John K. Lauber
Member

/s/ Christopher A. Hart
Member

/s/ John A. Hammerschmidt
Member

/s/ James L. Kolstad
Member

March 13, 1992

APPENDIXES
APPENDIX A
INVESTIGATION

Donegal Investigation

The Safety Board learned of the Donegal, Pennsylvania, accident about 2:30 p.m. eastern standard time on June 26, 1991, and dispatched an investigative team from Headquarters in Washington, D.C., and from regional offices in Parsippany, New Jersey, and Chicago, Illinois. The team members arrived on scene by 11 p.m. on June 26, 1991, and established investigative groups for human performance, highway, vehicle, motor carrier operations, and survival factors.

Representatives of Greyhound Lines, Inc., the Pennsylvania Turnpike Commission, the Pennsylvania State Police, the Ohio State Highway Patrol, Pro Drive, Inc., and the Federal Highway Administration participated in the investigation.

Hearing/Deposition

The Safety Board took the deposition of the accident busdriver. No hearing was convened.

Caroline Investigation

The Safety Board learned of the Caroline, New York, accident about 9:40 a.m. eastern standard time on August 3, 1991, and dispatched an investigative team from Headquarters in Washington, D.C., and from the Parsippany, New Jersey, regional office. The team arrived on scene at 2:30 p.m. and established investigative groups for human performance, highway, vehicle, motor carrier operations, and survival factors.

Representatives of Greyhound Lines, Inc., and the Federal Highway Administration participated in the investigation.

Hearing/Deposition

There was no public hearing nor were depositions conducted during the investigation.

APPENDIX B**GREYHOUND BUSDRIVER INFORMATION**

The Donegal busdriver, Nadiyah Shakir, was 23 years old at the time of the accident. She was employed by Greyhound Lines, Inc., on June 22, 1991. She had a medical certificate showing that she was physically qualified to operate a commercial motor vehicle in interstate commerce. She was issued a Commercial Driver's License on June 21, 1991.

The Caroline busdriver, Carlos Adornos, was 26 years old at the time of the accident. He was employed by Greyhound Lines, Inc., on June 7, 1991. He had a medical certificate showing that he was physically qualified to operate a commercial motor vehicle in interstate commerce. He held a valid District of Columbia chauffeur's license issued on September 4, 1990.

APPENDIX C
INJURY INFORMATION

The Abbreviated Injury Scale (AIS) of the American Association for Automotive Medicine is a standard system of assessing injury severity. Injuries in this accident have been coded according to the revised 1990 AIS. The numbers in parentheses indicate the number of persons in each injury category who died.

Donegal, Pennsylvania
Abbreviated Injury Scale Table

<u>Injuries</u>		<u>Busdriver</u>	<u>Passengers</u>	<u>Total</u>
Maximum Injury, Virtually Unsurvivable	(AIS-6)	0	0	0
Critical	(AIS-5)	0	1 (1)	1
Severe	(AIS-4)	0	0	0
Serious	(AIS-3)	0	1	1
Moderate	(AIS-2)	1	3	4
Minor	(AIS-1)	0	9	9
Unknown	(AIS-9)	0	1	1
None		0	1	1
Total		1	16	17

Caroline, New York
Abbreviated Injury Scale Table

<u>Injuries</u>		<u>Busdriver</u>	<u>Passengers</u>	<u>Total</u>
Maximum Injury, Virtually Unsurvivable	(AIS-6)	0	0	0
Critical	(AIS-5)	0	0	0
Severe	(AIS-4)	0	0	0
Serious	(AIS-3)	0	1	1
Moderate	(AIS-2)	0	0	0
Minor	(AIS-1)	1	32	33
Unknown	(AIS-9)	0	0	0
None		0	5	5
Total		1	38	39

APPENDIX D

DRIVING SKILL EVALUATION FORM

1
2
3
4

DRIVING SKILL EVALUATION

Driver W. Statik
Instructor H. Miller

Location North
Date 5-21-51

Hours 9
Bus Type E

SKILLS	RATING	COMMENTS
1. Personal Appearance	3	
2. Pre-Trip Inspection	4	practice needed
3. Seat, Mirror Adjustment	2	some work needed
4. Engine Start	2	satisfactory for day
5. Start-up Air System Check	1	memorize procedure
6. Rolling Brake Check	2	later for day
7. Announcements	2	
8. Scan Panel, Road, Mirrors	2	More on panel
9. Use of Brakes	2	sat. for day - smooth on the
10. Use of Accelerator	2	" " " watch pumping
11. Accuracy of Steering	4	Keep wheel steady
12. Leaving the "Big Picture"	4	Keep practice of
13. Leaving an Out	2	satisfactory for day
14. Use of Signals, Horn	4	some practice on turning
15. Commentary Driving	2	Needs work on side of
16. Straight Forward Driving	2	Keep wheel steady
17. Straight Backing	1	satisfactory for day
18. Right Turns	4	watch 4 distance
19. Left Turns	4	watch 4 distance
20. Anticipated Stops	4	watch correct signal - parallel
21. Serpentine - Forward		
22. Serpentine - Reverse (Opt)		
23. Offset Alley		
24. Skid Recovery (Opt)		
25. 100 Foot Alley		
26. Use of Tire Chains		
27. Crossing Intersections	4	some practice needed
28. Crossing Railroad Tracks	2	a bit rough at stops
29. Crossing Narrow Bridges	4	some practice needed
30. Parallel Parking		
31. Angled Loading Slip		
32. Entering Traffic/Merging	2	watch signals
33. Dealing With Pedestrians	2	satisfactory for day - seeing
34. Overtaking and Passing		
35. Decreased Visibility		
36. Decreased Traction		
37. Mountain Driving/Grades	1	needs more work
38. General Safe Practices		

REMARKS:

[Handwritten notes and signatures in the remarks section]

APPENDIX E

TRAINING SCHOOL FEE INFORMATION

OHIO ENROLLMENT AGREEMENT
BASIC TRUCK DRIVER TRAINING COURSE

Date: May 19, 1991 Agreement No. 813
 Class Start Date Requested: May 19, 1991.

This Enrollment Agreement covers a course of instruction at the Mid-American Training Center located at the above address.

All theoretical and practical training shall take place or begin and end at the Mid-American Training Center.

I hereby enter into this Agreement with PRO DRIVE Incorporated for enrollment in the BASIC TRUCK DRIVER TRAINING COURSE to be completed in approximately three weeks. Students may be admitted to the Basic Course on Friday of every calendar week with an orientation session running from 1:00 p.m. to 6:00 p.m. The Basic Course is scheduled from 7:00 a.m. to 3:30 p.m. Monday through Sunday. Certain holidays are observed. See the PRO DRIVE Catalog. All start dates and schedules are subject to change.

The course normally consists of 136 hours (a range of 130 to 142 instructional hours). Please see the School's Catalog, "Course Outline and Duration". The course covers:

- o Theory of Truck Driving (Classroom)
- o Practice Driving on Off-Highway Practice Area (Range)
- o Practice Driving on Public Roadways

Cost: Registration Fee	\$ 100
Tuition	<u>3,295</u>
Total Cost of Course	\$3,395

Other Costs Include (estimated, not paid by School):

U.S. Department of Transportation Physical (before course)	\$40
Operator's License (during course from own state) - Ohio	\$60

Additional Costs/Charges: Students may incur additional costs securing a CDL in states in which the School does not have a Training Center. Please see the School's Catalog "Additional Costs". The School charges \$50 per hour payable in advance for missed instructional hours that must be "made up". Please see the School's Catalog "Attendance", "Make-up work".

Payments: I agree to make total payments of \$3,395 for the Course as follows: the \$100 Registration Fee upon execution of this Agreement, and the remainder (\$3,295) no later than the first day of classes.

Books: Use of all required books and supplies are included in the cost of tuition. Students are allowed to use textbooks and materials, but they remain the property of PRO DRIVE. Students who desire to keep their textbooks may purchase them at PRO DRIVE's replacement cost.

Refund Policy: A student may cancel his/her Enrollment Agreement at any time. Notice of Cancellation must be any written notice signed and dated and delivered or mailed to above address. A student who does not attend classes or provide explanation for 10 consecutive calendar days is considered withdrawn from School. The School may terminate a student for insufficient progress, nonpayment, failure to comply with rules, etc. The Catalog gives specific details. The termination date is the last date of attendance by the student.

What follows is PRO DRIVE's Refund Policy. Any amount paid by the student or on the student's behalf in excess of the charge specified below less any monies advanced to the student for living expenses or other purposes shall be refunded within 30 days of the stated event.

- 1) If the student is rejected by the School prior to the commencement of classes, no charge.
- 2) If Notice of Cancellation is given by the student no later than midnight of the third business day after Notice of Acceptance, no charge and all monies paid shall be refunded within 10 business days.
- 3) If the student's Notice of Cancellation is given after the third business day following acceptance, but prior to attending class, a charge of \$150.
- 4) If the student has not visited the School facility prior to enrollment, notwithstanding Paragraph 3 above, the student may withdraw without charge within three days following either the regularly scheduled orientation procedures or an opportunity to tour the School facilities and inspect equipment.
- 5) If for any reason a student withdraws or is terminated by the School during or at the end of the first week of attendance, the charge shall be \$350.
- 6) If for any reason a student withdraws or is terminated by the School after beginning the second week of attendance, but prior to completing more than 50% of the course of instruction, the charge shall be the pro rata portion of the total cost of the course of instruction, plus \$150.

- 7) If for any reason a student withdraws or is terminated by the School after completing more than 50% but less than 75% of the course of instruction, the charge shall be the pro rata portion of the total cost of the course of instruction, plus the lesser of \$500 or 15% of the total cost.
- 8) If for any reason a student withdraws or is terminated by the School after completing 75% of the course of instruction, the charge shall be the total cost of the course of instruction.
- 9) Pro Rata portions of a course for the purposes of this Refund Policy shall be calculated as follows:
 - (a) School shall determine the number of class days elapsed from the start of the student's attendance until the student's last date of attendance;
 - (b) The number of class days elapsed shall be divided by the number of class days required to complete the course of instruction; and
 - (c) The resulting number shall be multiplied by the total cost of the course of instruction.

A week is defined as five days of scheduled instructional hours.

In cases where a student paid with financial aid, the School must apply any refund that would otherwise be due a student directly to his/her obligation under financial aid secured for the purpose of financing tuition, room and board, or related expenses. Refunds will be applied to repay the Student Bank Loan. After discharging any such obligations, any additional monies due a student shall be refunded to the student.

Course Completion and Diploma: Upon completion of all course work with a cumulative grade average of at least 75% or better in the classroom component of instruction, passing all tests administered on a "Pass" or "Fail" basis and achieving a score of not less than 75% on the final test of an on and off the road driving skills test, a Diploma is distributed.

Placement, Employment, and Advisory Services: The School provides free placement and job counseling services to student applicants, students, and graduates. This service has been very successful in helping students find employment as truck drivers.

The School's placement services include course materials on public and employer relations and assistance in arranging interviews and resume preparation. The School also provides individual counseling on successful job interview techniques.

State regulations prohibit the School from guaranteeing to students employment or a set wage.

Release, Hold Harmless, and Indemnity: I release and agree to hold harmless and indemnify the School from any loss or injury I may incur during my training as a result of my own negligence or failure to follow instructions or School policy as stated in the Catalog.

Acknowledgements and Certifications: By executing this Enrollment Agreement I acknowledge and/or certify that: I have received a copy of the School's catalog for this course, the terms and conditions of which are expressly incorporated herein by reference, and two copies of the "Enrollment Agreement and Buyer's Right to Cancel"; the cost of tuition does not cover transportation to and from the School or room and board; I hold a current Ohio Chauffeurs License or acceptable equivalent; I am at least 18 years old and that this is a course of instruction for beginning truck drivers; the School has told me that they cannot guarantee employment; and this Agreement is expressly conditioned upon my being able to successfully pass a DOT Physical Examination. This Agreement is a LEGALLY BINDING Agreement unless cancelled within three (3) business days after I receive the School's Notice of Acceptance. THIS IS AN ENROLLMENT Agreement AND IS NON-NEGOTIABLE. Any holder of this consumer credit Agreement is subject to all claims and defenses which the debtor could assert against the seller of goods or services obtained pursuant hereto or with the process hereof. Recovery hereunder by the debtor shall not exceed amounts paid by the debtor hereunder. This constitutes the entire agreement between the School and the student, and no verbal statements or promises will be recognized.

NOTICE TO THE BUYER: Do not sign this Agreement before you read it or if it contains any blank spaces. You are entitled to an exact copy of the Agreement you sign.

I ACKNOWLEDGE READING THIS AGREEMENT AND RECEIVING TWO TRUE AND CORRECT COPIES OF THIS AGREEMENT AND THE SCHOOL'S CATALOG.

Signature: Wadiyah H. Sherbin 851-9088 2-26-68
(First, Middle Initial, Last) Telephone Date of Birth

Print Name: Wadiyah H. Sherbin
(First, Middle Initial, Last)

1085 E 125 #2 (Cleveland, OH 44108)
Address (Street) (City) (State) (Zip)

WAIVER STATEMENT

If this section is not applicable, please indicate "NA".

The School has advised me that because of the following circumstances, (Mark any which apply)

- I am under the age of 21.
- I have a poor driving record.
- I have a poor work record.
- I have been convicted of a felony.
- Other, Describe: _____

Additional conditions set forth on the following page

PRO DRIVE

Driver Training, Recruiting and Retention Specialists

Dear PRO DRIVE/Greyhound Student:

Congratulations on your enrollment in the PRO DRIVE/Greyhound Bus Driver Training Program.

PRO DRIVE is thrilled to have the opportunity to work with you and Greyhound. Please be assured that we will do everything that we reasonably can to provide you with the training that you will need in order to be successful as an professional bus driver for Greyhound.

We've got some really good news! Since you initially contacted PRO DRIVE we have significantly improved the schools Money Back Guarantee. The Guarantee was previously limited to your tuition and registration fee and subject to certain conditions. It has now been significantly improved and enlarged.

If you do not complete the Greyhound Bus Driver Training Program or you do not end up working for Greyhound, PRO DRIVE will:

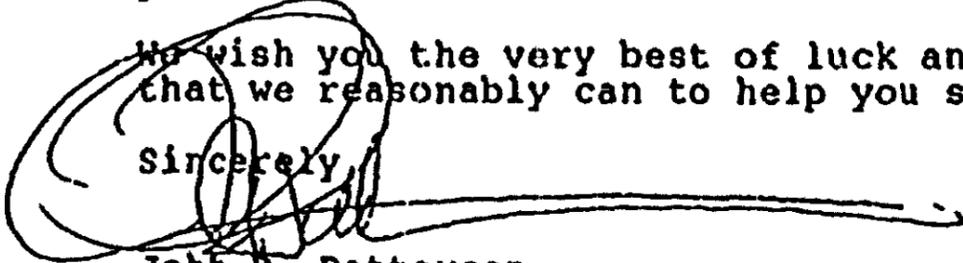
- o Refund the \$3,395.00 you paid to attend the Driver Training Program.
- o Pay the living expenses you ACTUALLY incurred during your training up to a maximum of \$150.00 per week.
- o Repay the loan origination fee you paid to American Enterprises and any interest incurred if you finance any part of your cost of the Bus Driver Training Program.

All refunds will be paid first against your outstanding loan obligations to American Enterprises (if you borrowed the money that you required). In the case of people who paid all or part of the cost of the program in cash the refund will be paid directly to you. We think that this new expanded Guarantee is the strongest possible evidence of our strong commitment to provide you with the best possible start on a new career and to stand behind the quality of our training.

The fact that you have been accepted into this program means that we think you are qualified. If you work hard and do your very best most of you will succeed. In the case of those who don't, the School's Refund Policy assures that all you will lose is the time and energy that you will invest.

We wish you the very best of luck and will do everything that we reasonably can to help you succeed.

Sincerely,


John R. Patterson
President

JRP:lah
JRP897

EXCERPT FROM CONTRACT BETWEEN GREYHOUND AND PRO DRIVE3. WASHOUTS AND WITHDRAWALS:

- a) Greyhound reserves the right to have Greyhound Representatives present to monitor all stages of Driver Recruitment and/or Driver Training.
- b) Washout Procedures, Charges, and Refunds:
 - i. The parties anticipate that not all candidates will complete the course and meet Greyhound's standards for driver proficiency. Upon request, Contractor shall confer with Greyhound during the first eleven (11) days of training and remove from the course any candidate deemed unsuitable, at either party's sole discretion, by Contractor or Greyhound. The Two Thousand Fifty Dollars (\$2,050.00) . payment for that candidate shall then be credited or reimbursed to Greyhound by Contractor, less Four Hundred Fifty Dollars (\$450.00) plus Eighty-Six Dollars (\$86.00) for every day of training completed prior to removal which shall be retained by or otherwise due Contractor from Greyhound.
 - ii. Students who "wash out" after the first eleven (11) days of training or based on final or CDL testing as provided below are subject to a credit or refund to Greyhound of One Thousand Six Hundred Dollars (\$1,600.00).

A "wash-out" is any candidate who does not successfully complete all the course requirements established as minimum standards acceptable to Greyhound including, but not limited to, a final "hands-on" driving test established and administered in a manner acceptable to Greyhound, in its sole discretion reasonably exercised. Greyhound may choose to have a Greyhound employee/representative of its choice

monitor any or all portions of the course of instruction to ensure that tests, both written and hands-on, are being administered in a manner acceptable to Greyhound. Greyhound shall have such representatives observe final "hands-on" testing to ensure quality control. This gives Contractor a fair chance to correct deficiencies before the student leaves the location at which the Driver Training is provided. In the event that Greyhound chooses not to observe final hands-on testing, Greyhound agrees to be bound by Contractor's or Subcontractor's pass/fail determination.

- iii. Students who successfully complete ("pass") these final hands-on tests without objection by Greyhound are considered successful and are not subject to credit or refund.
- iv. In the event of a bona fide dispute concerning a particular student's performance or if a student "fails" in the opinion of Contractor, Subcontractor and/or Greyhound during the final hands-on testing, Contractor may, at its own expense, hold the student over at the training location and provide the student with remedial training. If possible and practical, the student may then be resubmitted for Greyhound observed final hands-on testing at the training location and if not objected to shall not be subject to credit or refund. In the case of those students objected to by Greyhound at the time of the first or second Contractor or Subcontractor test, Contractor may, without further remedial training, request that Greyhound submit them to CDL testing in their respective state of licensure. If such students do not pass the CDL test after two (2) reasonable attempts arranged by Greyhound, Greyhound shall receive a refund or credit in the sum of One Thousand Six Hundred Dollars (\$1,600.00).

Greyhound agrees to make reasonable efforts to be reasonable and consistent in its assessments of all students and to assist such students in arranging for and taking CDL tests. Contractor recognizes Greyhound has no control over state-controlled CDL testing.

- v. Students who at any time, in the opinion of

Greyhound or Contractor, should no longer continue with Driver Training, shall be removed from the program and shall not be provided further training with Greyhound-related equipment or supplies; provided, however, Contractor may place removed candidates in any other program it may offer to other employers or students in general.

- vi. The preceding Paragraphs and Subparagraphs of this Section 3 pertain to candidates who "washout". Students who voluntarily withdraw from the course of instruction at any time will be subject to prorated charges payable by Greyhound, calculated in a manner consistent with those provided for in Subparagraph 3(b)(i) above.

APPENDIX F

GREYHOUND ROUTE DIRECTIONS

MAPLE HEIGHTS

- TAKE A LEFT OUT OF TERMINAL GO 6 LIGHTS-LEFT ON 24TH TO I-77 SOUTH TO I-480 EAST. TAKE I-480 TO WARRENSVILLE RD EXIT. RIGHT ON WARRENSVILLE CENTER RD SOUTH APPROX 1 MI. TAKE A LEFT ON SOUTHGATE BLVD THEN TAKE A LEFT AT THE LOOK FOR PUTT FIRST LIGHT - YOU'LL BE IN THE AGENCY PARKING LOT. TO EXIT TAKE A LEFT OUT OF TERMINAL ON SOUTHGATE BLVD TO NORTHFIELD RD TAKE A RIGHT ON NORTHFIELD GO TWO LIGHTS TO ROCKSIDE RD TAKE A LEFT ON ROCKSIDE TO 480E.

WARREN

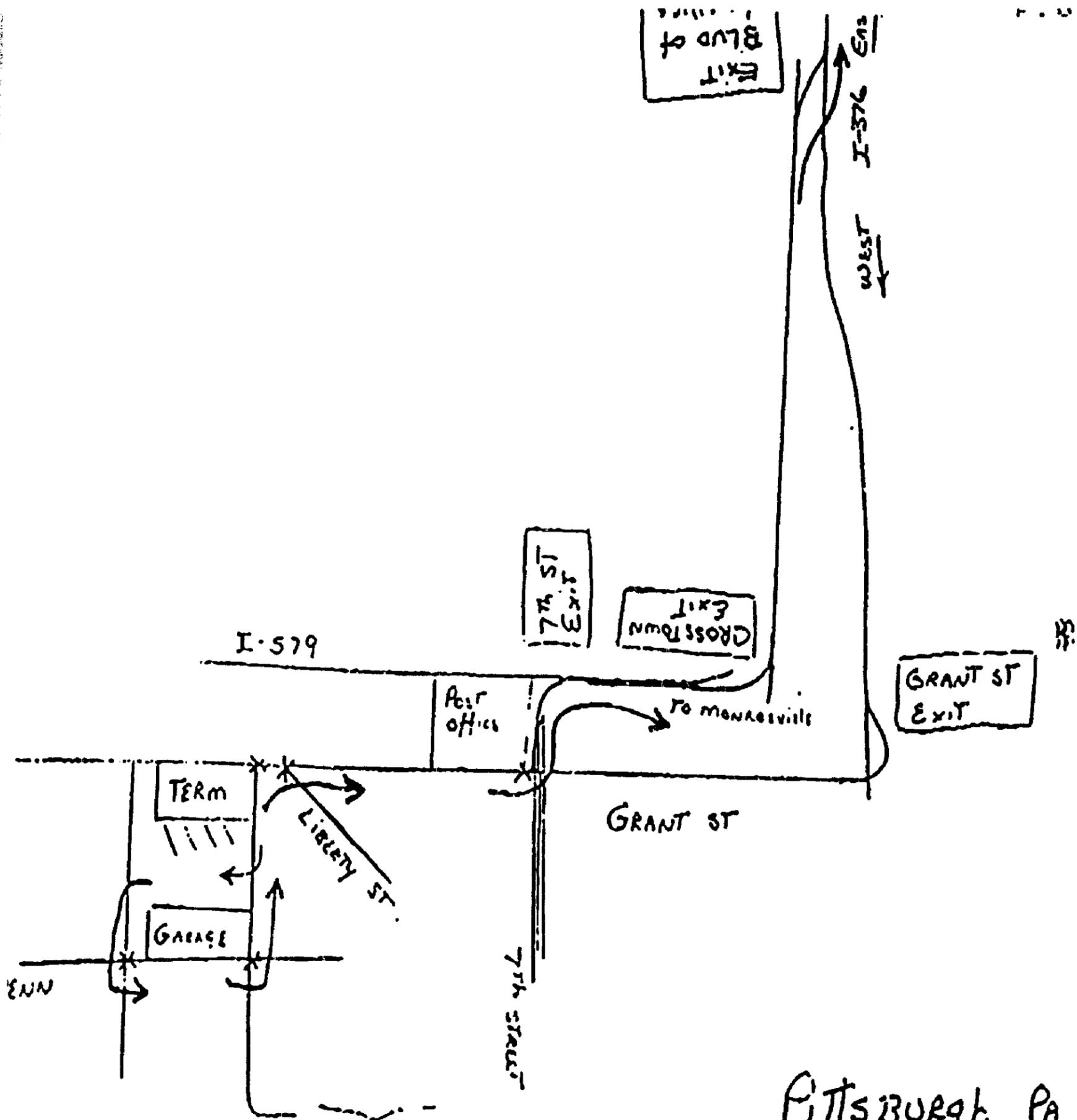
- 480 EAST TO OHIO TURNPIKE (YOUNGSTOWN) TAKE TPKE TO EXIT 14) TO ROUTE 5 (FOLLOW SIGNS FOR WARREN - WEST MARKET ST.) TAKE ROUTE 422 (W MARKET) TO ELM ST. TAKE A LEFT ON ELM. STATION WILL BE ON YOUR LEFT AT THE INTERSECTION OF ELM & HIGH. NEXT TO MAYTAG. TO EXIT GO BACK OUT OF STATION ON HIGH TO ELM ST. TAKE A RIGHT ON ELM TO ROUTE 422 EAST. LEFT ON 422 ALL THE WAY TO YOUNGSTOWN.

YOUNGSTOWN

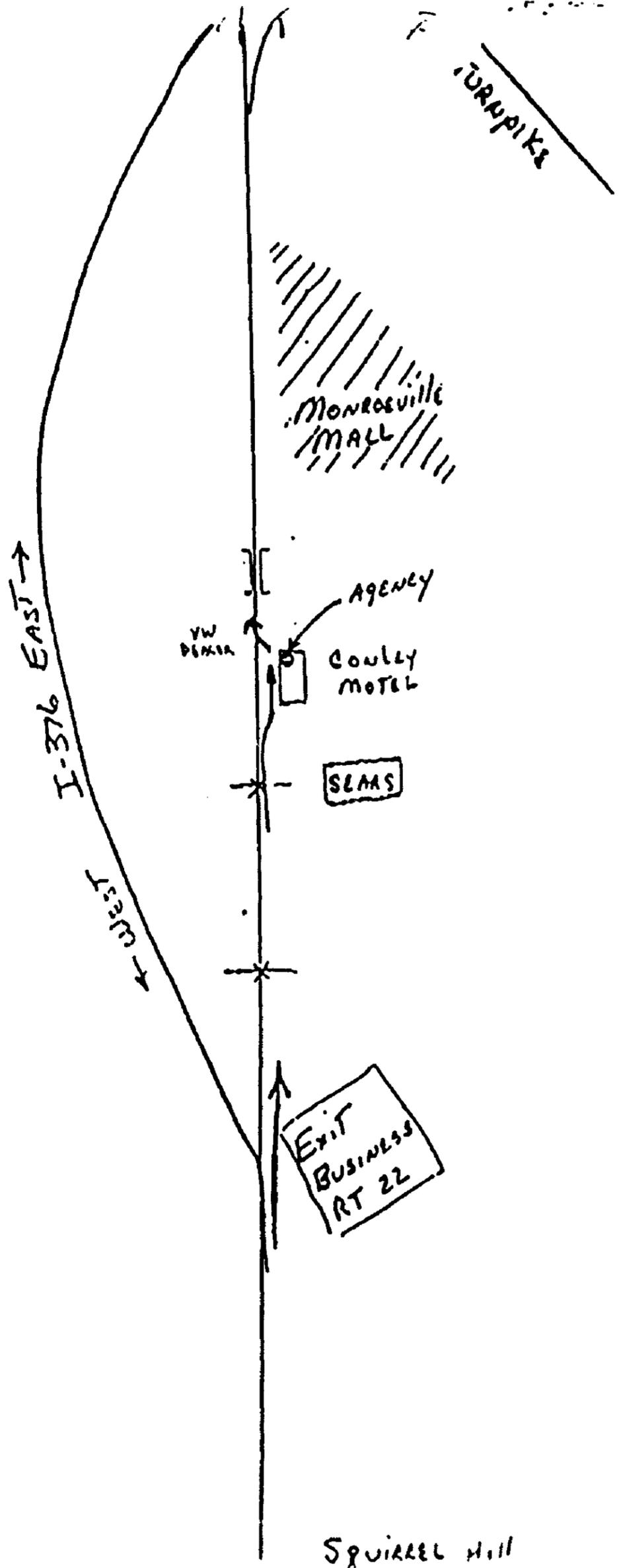
- TAKE 422 EAST UNDER ROUTE 193 INTO YOUNGSTOWN. WATCH FOR AGENCY ON YOUR RIGHT. TO EXIT GO BACK OUT 422 WEST TO ROUTE 193. FOLLOW SIGNS TO PGH (ROUTE 193 TO I-680E TO I-76E) (422 EAST TURNS INTO MARTIN LUTHER KING HWY)

PITTSBURGH

- TAKE I-76 EAST TO EXIT 3 (I-79) FOLLOW I-79 SOUTH TO I-279 SOUTH (LEFT LANE EXIT) TO EXIT 14 (CONVENTION CENTER EXIT) GO TO 7TH AVE, TAKE A RIGHT ON 7TH. GO TO THE FIRST TRAFFIC LIGHT (GRANT ST.) TURN RIGHT ON GRANT TO 11TH ST. TAKE 11TH TO THE STATION. STATION IS ON YOUR LEFT. AS YOU ENTER LOOK FOR INBOUND PHONE TO CALL DISPATCH.



PITTSBURGH, PA
OUTBOUND - INBOUND
TO MONROEVILLE

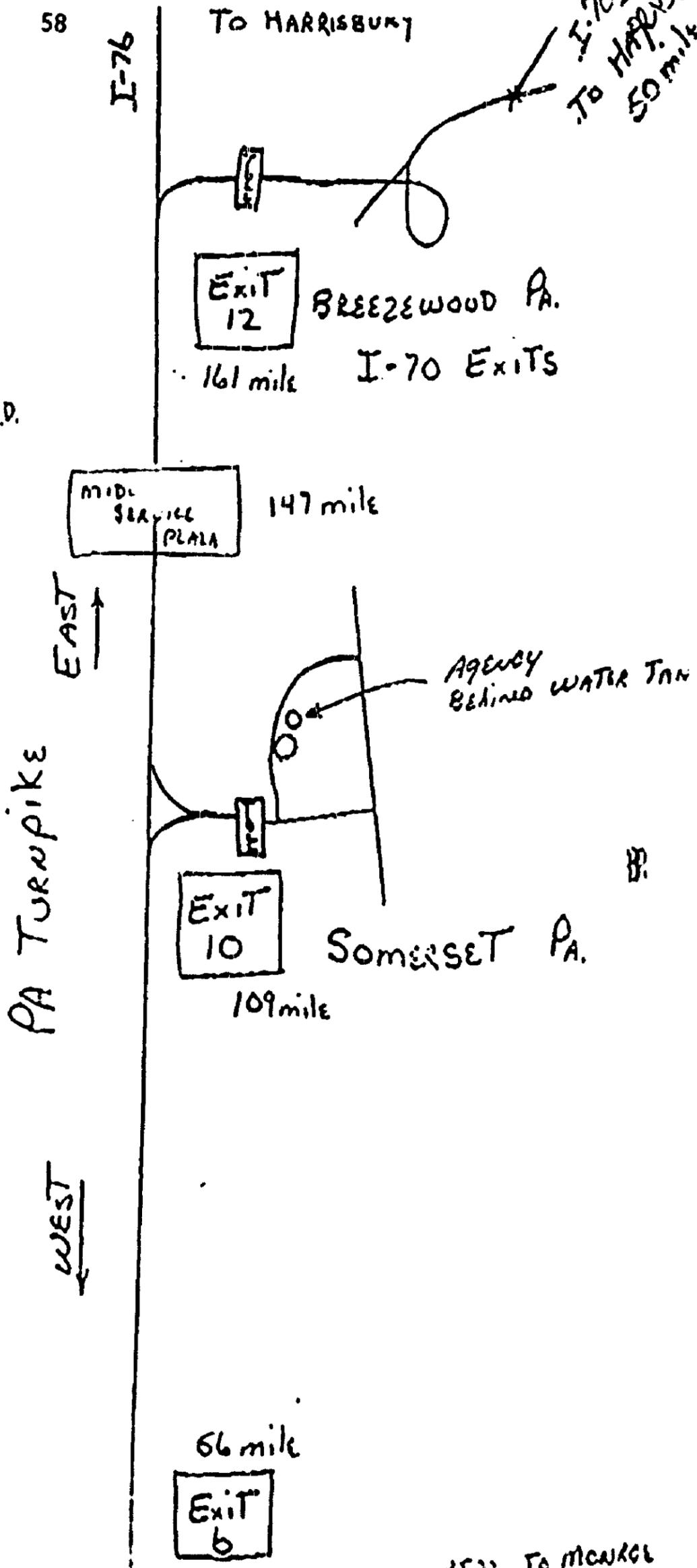


MONROEVILLE
 PA TURNPIKE EXIT 6

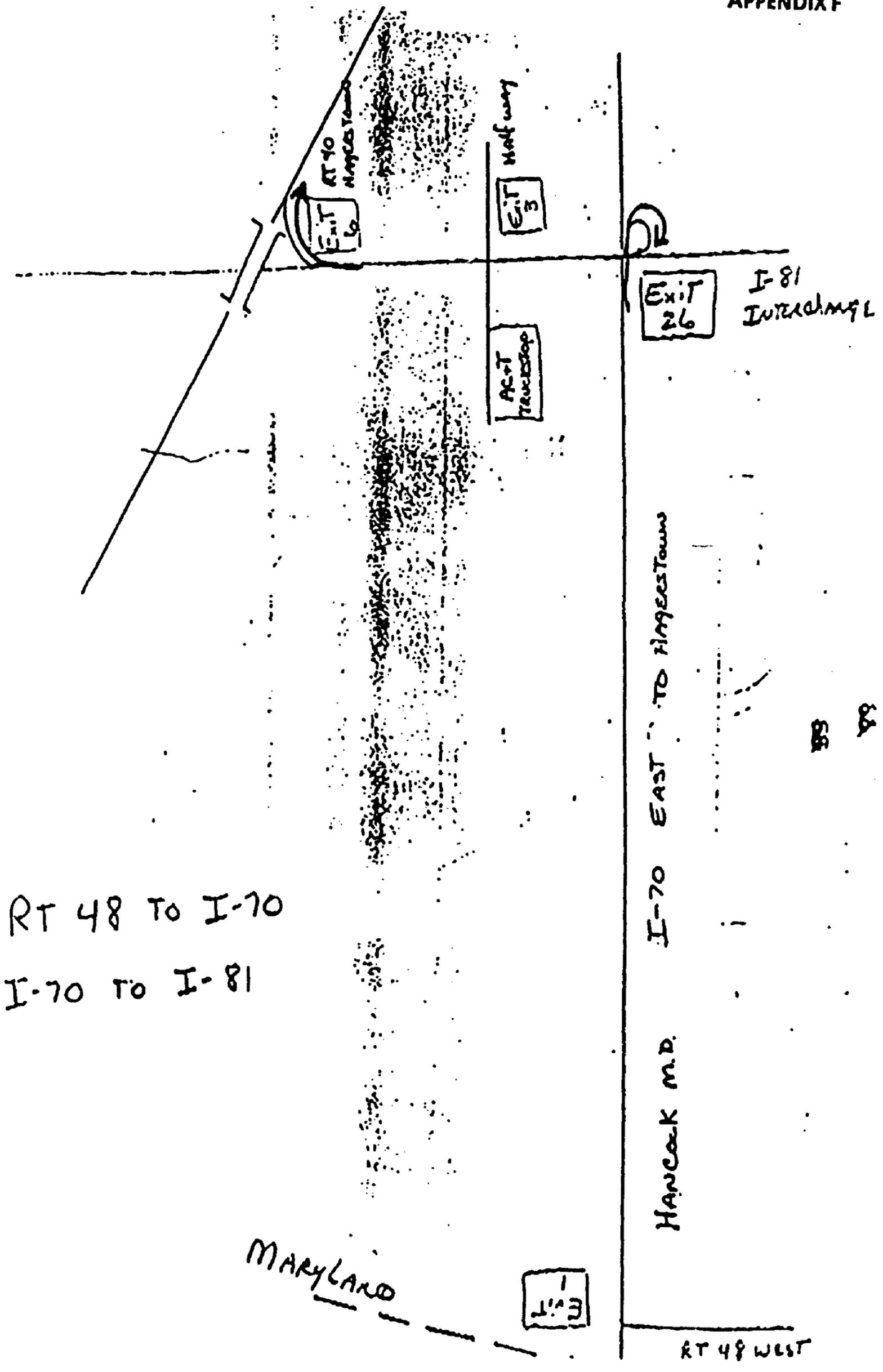
APPENDIX F

58

EXIT 6 MONROEVILLE
EXIT 10 SOMERSET
EXIT 12 BREEZEWOOD
I-70 EXITS
TO HAGERSTOWN MD.



Rt 22 TO MONROE



RT 48 TO I-70
 I-70 TO I-81

MARYLAND

I-70 EAST TO HAGERSTOWN

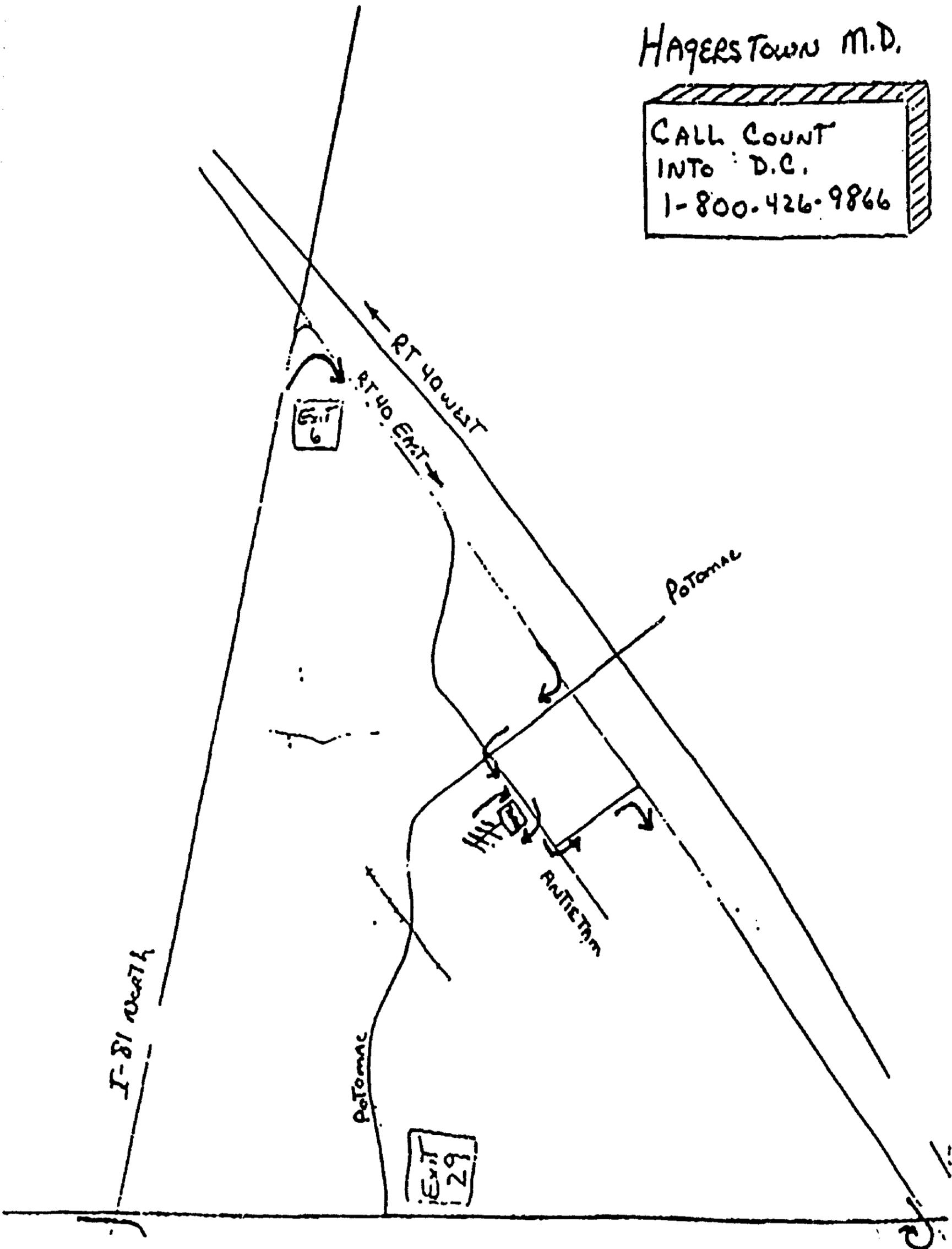
HANCOCK M.D.

RT 48 WEST

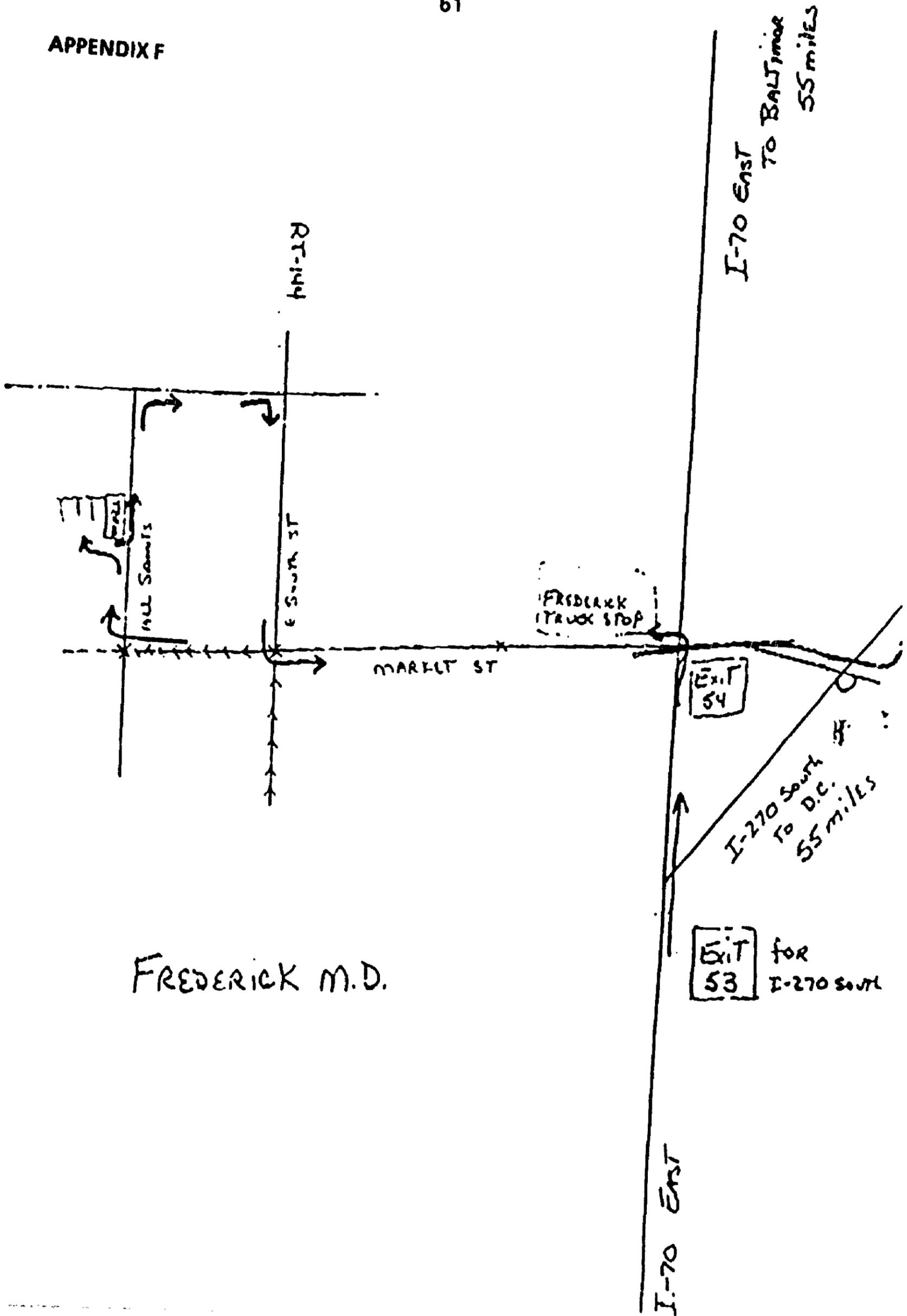
88
89

HAGERSTOWN M.D.

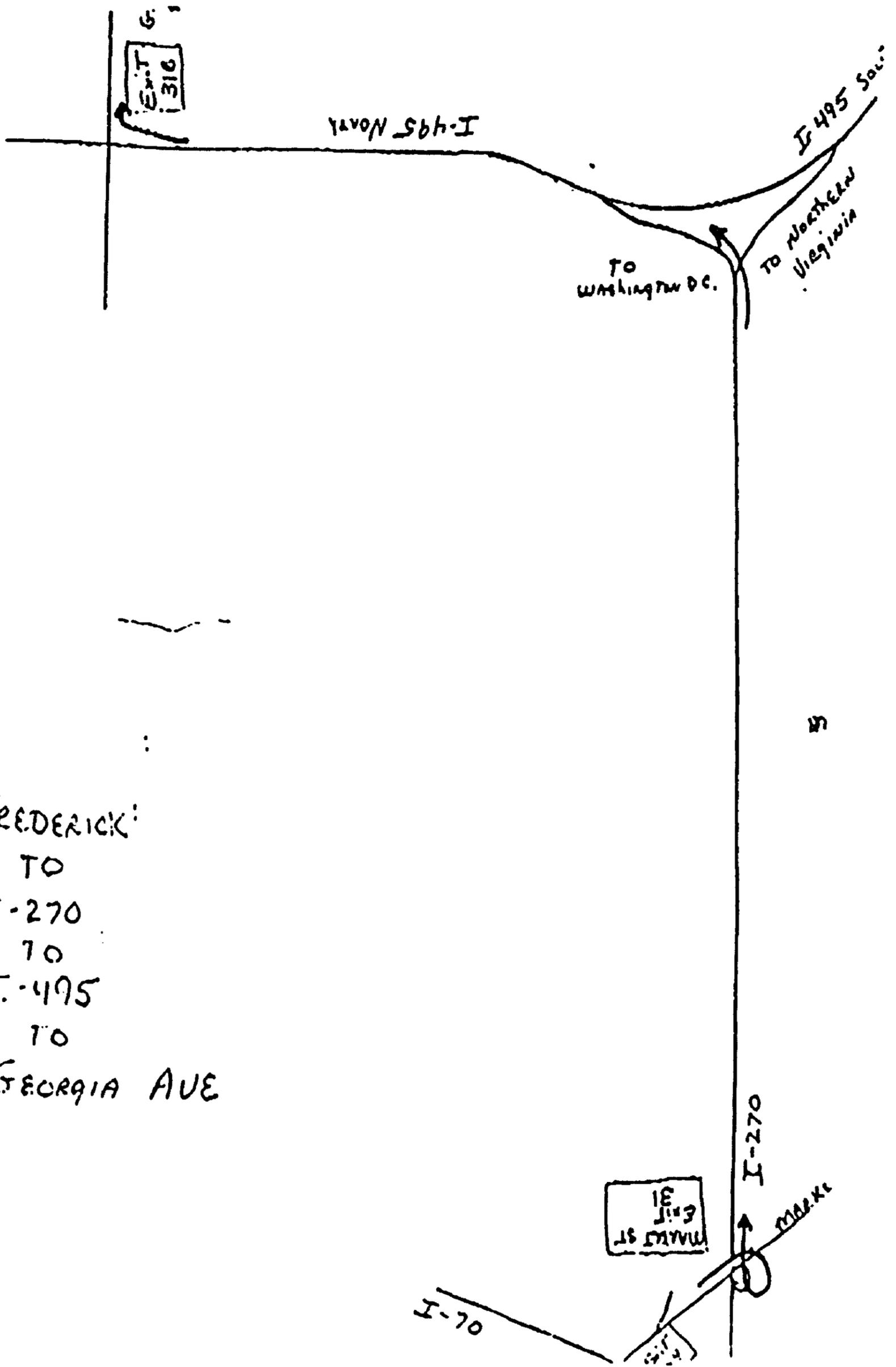
CALL COUNT
INTO D.C.
1-800-426-9866



APPENDIX F

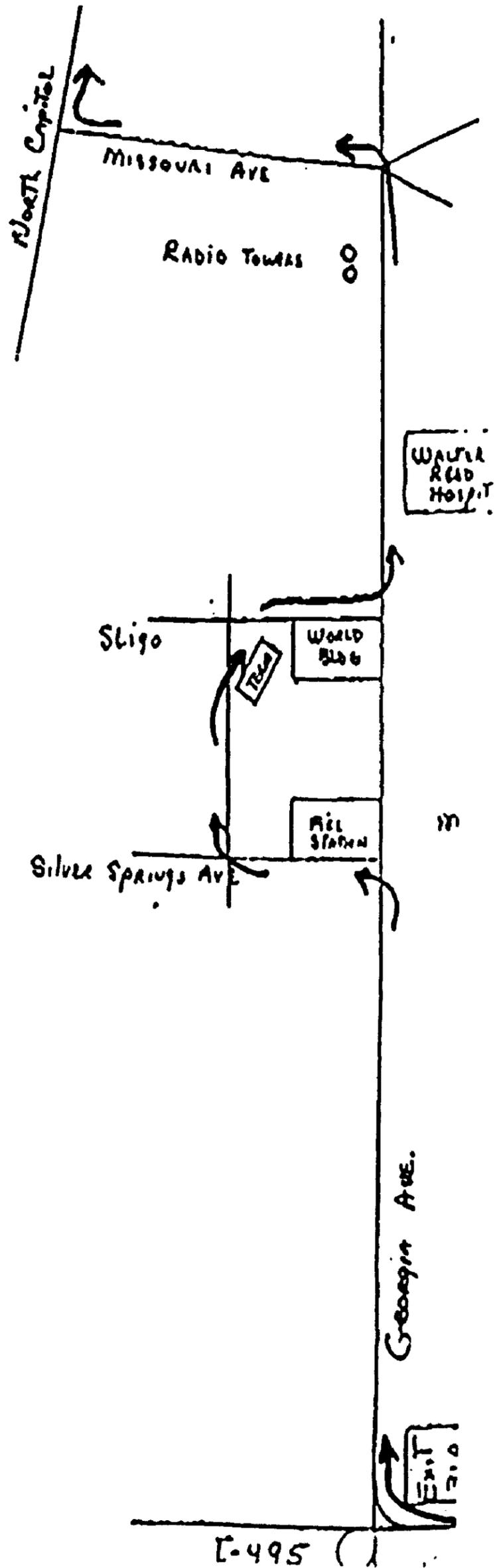


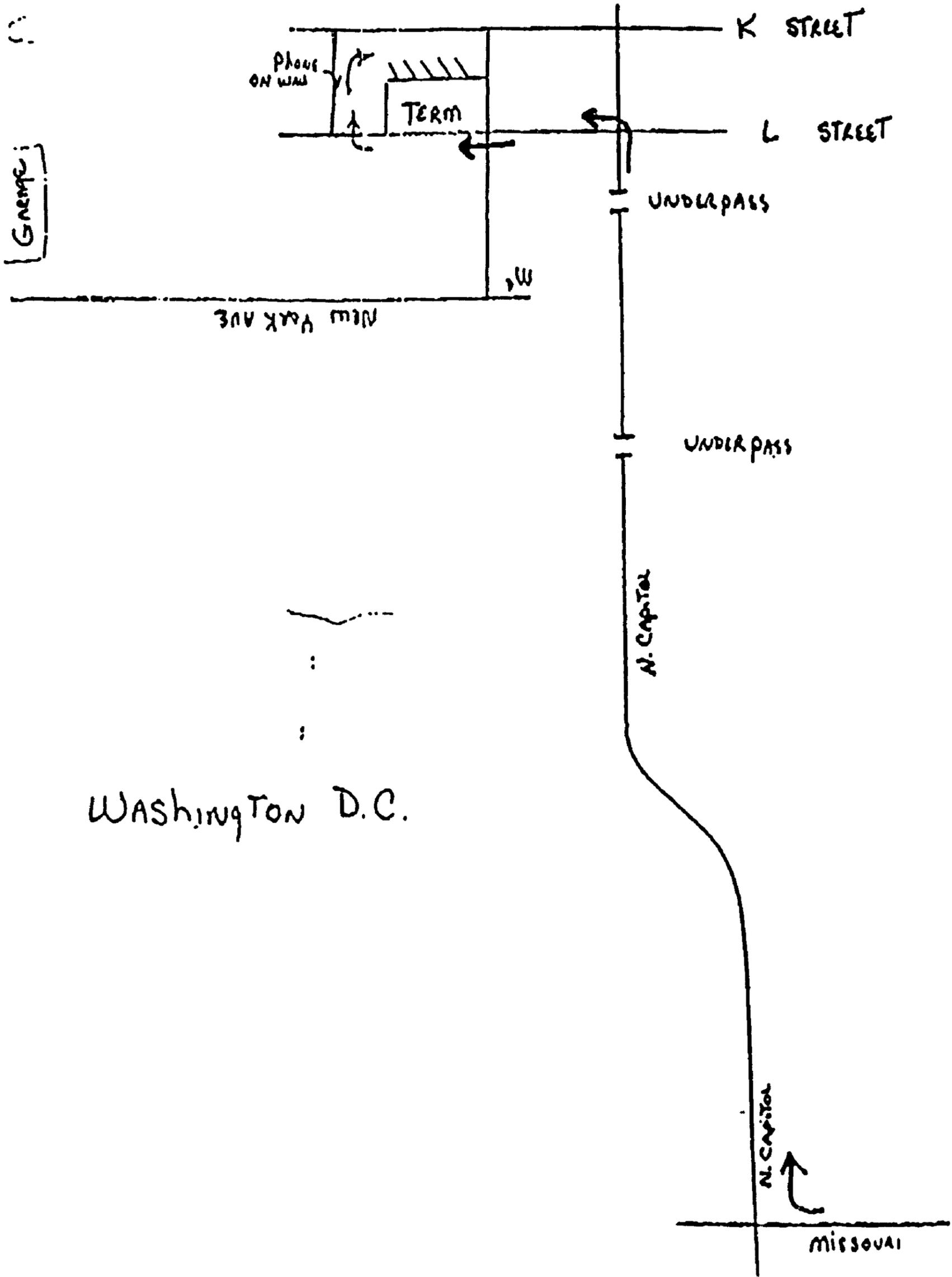
FREDERICK M.D.



FREDERICK:
 TO
 I-270
 TO
 I-495
 TO
 GEORGIA AVE

Silver Springs





APPENDIX G**COMMERCIAL DRIVER'S LICENSE STANDARDS**

The Commercial Motor Vehicle Safety Act of 1986 requires the States to adopt uniform minimum licensing and testing standards for drivers of commercial vehicles. By April 1, 1992, all drivers of commercial vehicles will need a Commercial Driver's License (CDL).

Under this program, commercial drivers must do the following:

Notify home State Motor Vehicle Administrations of any convictions in other States within 30 days of the conviction.

Notify employers of any revocation, suspension, cancellation, or disqualification before the end of the next business day after the driver received notice of that fact.

Provide employers with a 10-year commercial driving history.

Turn in all licenses issued by other States or countries.

Meet the minimum age requirement for the applicable class of CDL:

At least 21 years old to drive a commercial motor vehicle across State lines (interstate).

At least 16 years old to drive a heavy straight truck, 26,001 pounds or more.

At least 18 years old to obtain a Class A commercial driver's license (tractor trailers).

At least 18 years old to drive a bus.

At least 21 years old to haul hazardous material.

Pass the vision screening, law test, and any required CDL knowledge tests.

In addition, commercial drivers must meet these requirements, as applicable:

Drivers with a Class A, B, C, or D driver's license and experience driving a commercial vehicle may be asked to provide a certification of experience signed by the driver's employer. Self-employed drivers must furnish a copy of their vehicles' registration cards or titles.

Applicants without a valid driver's license, must pass the Law Test prior to taking the Commercial Driver's License tests.

Driver application information will be used to check applicants' driving records and will be used in a check of nationwide Commercial Driver's License Information System and the National Driver's Register.